



U.S. EPA Proposes Cleanup Action

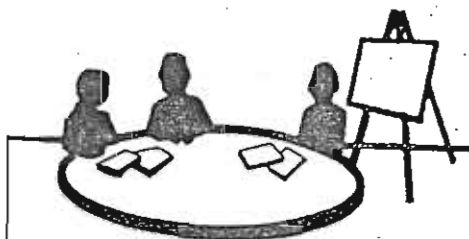
Crab Orchard National Wildlife Refuge Superfund Site

Williamson County, Illinois

August 1989

This Fact Sheet will tell you about ...

- U.S. EPA's proposed cleanup plans for two operable units at the Crab Orchard National Wildlife Refuge Superfund site.
- The alternatives considered for cleaning up the operable units.
- How you can participate in choosing the final site cleanup remedy for each operable unit.



PUBLIC PARTICIPATION

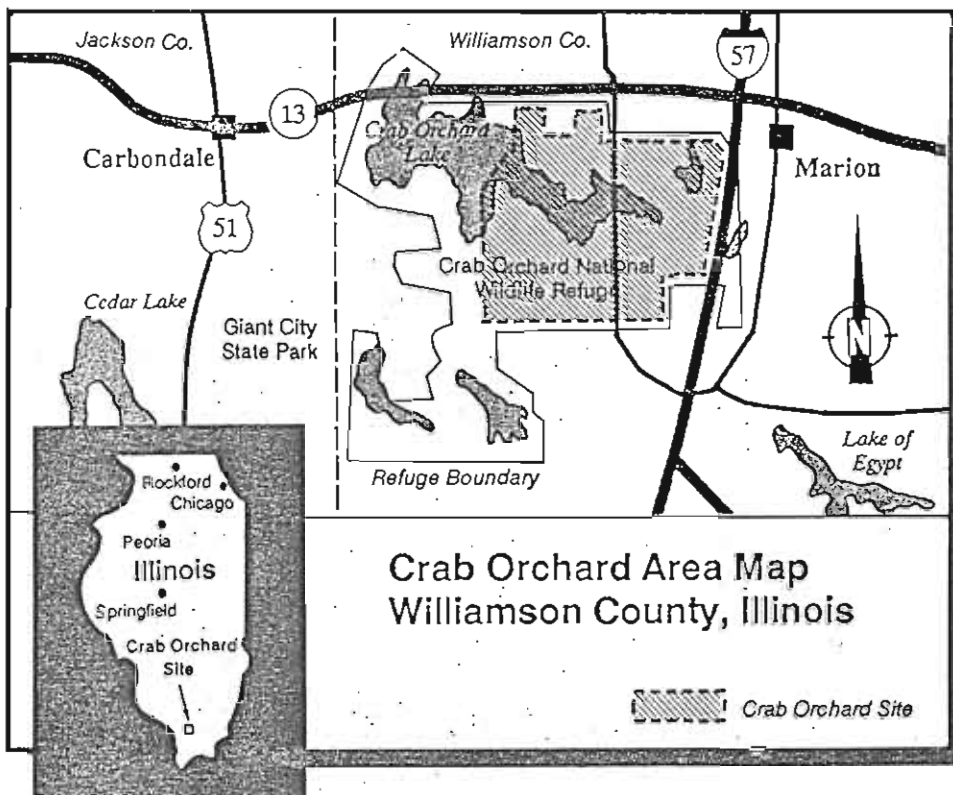
U.S. EPA, the U.S. Department of the Interior, and the Illinois EPA will hold an availability session to answer residents' questions about the Crab Orchard Superfund investigation:

DATE: Wednesday, August 30, 1989

TIME: 3:00 p.m. to 6:00 p.m.

PLACE: Batteau Room
John A. Logan College
Greenbriar Road
Carterville, Illinois

Also on Wednesday August 30, 1989, U.S. EPA will hold a public hearing to explain the results of the Crab Orchard feasibility study and to accept oral public comments on the cleanup alternatives. A court reporter will be present to provide a formal record of the comments. The public hearing will be held at the above location at 7:00 p.m.



The United States Environmental Protection Agency (U.S. EPA) has proposed a plan to correct contamination problems at the Crab Orchard National Wildlife Refuge. The corrective actions are proposed for four sites within the Refuge contaminated with polychlorinated biphenyls (PCBs) and three sites contaminated with metals.

There are four sites contaminated primarily with PCBs. Metals such as lead or cadmium may also be present in some areas. U.S. EPA recommends that contaminated soil and sediment be excavated from each of the four sites. All excavated material contaminated with PCBs would be subjected to extremely high temperatures by incineration. The incineration would take place on site. The incineration process would destroy the PCBs in the soil and sediment. However, incineration would not destroy any metals present. Metals would be present in the ash residue produced by the incineration process.

Residue ash that is contaminated with high levels of metals would be treated by a process called stabilization/fixation. This would immobilize the metals within a cement-like material. The stabilized materials would be placed into an

industrial landfill which would be constructed on the Refuge.

There are three sites contaminated primarily with metals such as cadmium, chromium, and lead. Contaminated soils and sediments would be excavated from these sites. The contaminated soils and sediments would be treated with the stabilization/fixation process to immobilize the metals. Treated materials would be disposed of in a landfill constructed on the Refuge. The excavated areas would be filled with clean soil.

The proposals are described in detail in documents called proposed plans. U.S. EPA has developed separate proposed plans for the metals sites, called the "Metals Operable Unit"; and the PCB sites, called the "PCBs Operable Unit."

The proposed plans are based on a comprehensive evaluation of numerous cleanup alternatives. The United States Department of the Interior (Interior) and Sangamo-Weston, one company believed to be responsible for site conditions, conducted the evaluation, called a feasibility study (FS), under the supervision and guidelines of U.S. EPA, assisted by Illinois Environmental Protection Agency (Illinois EPA).

PCBs Operable Unit

(PCB sites are shown on the map on pages 4-5)

Four sites are contaminated with PCBs and comprise the PCB Operable Unit. These sites include the Job Corps Landfill, the Water Tower Landfill, the Area 9 Landfill, and the Area 9 Building Complex.

Soils, ground water, surface water, and sediments were sampled during the remedial investigation (RI) and tested for the presence of hazardous chemicals. PCBs and metals were identified as the primary chemicals of concern. Soil sampling in these four areas indicated the presence of PCBs, lead, and other chemical contaminants. Sediment samples at the Job Corps Landfill, and Area 9 Landfill, and Area 9 Building Complex contained PCBs and lead. Ground-water samples from each of the sites contained low levels of PCBs and/or metals and other contaminants. Surface water samples at the Job Corps Landfill site contained PCBs and other chemicals.

The RI included a risk assessment to identify any public health or environmental threats posed by the sites. Because the sites are located within a wildlife refuge, the risk assessment especially addressed the potential impact of the contaminants on local wildlife. The risk assessment indicated the following as presenting the greatest public health

and/or environmental threats:

- Surface soils at the Job Corps Landfill, the Area 9 Landfill and Area 9 Building Complex present a health threat to humans and wildlife.
- Deep (subsurface) soils present a threat to small and burrowing wildlife at all four sites.
- Sediments at the Job Corps Landfill, Area 9 Landfill, and Area 9 Building Complex present a direct threat to wildlife and, through food chain accumulation, to humans.
- Exposure to airborne contaminants presents a threat to small and burrowing wildlife at all four sites.

Although contaminants were also found in ground water and surface water at the sites, the risk assessment indicates that these contaminants do not currently pose a threat to public health or the environment. This is due primarily to the limited public access to these areas. However, the risks to humans could increase if greater public access was granted in the future.

U.S. EPA's Proposed Plan for the PCB-Contaminated Sites

U.S. EPA considered several cleanup alternatives to address contamination problems at the four PCB sites. These alternatives are shown on page 3. Each alternative was evaluated using several factors. The evaluation factors, called criteria, are explained on an insert included with this fact sheet. Any cleanup alternative selected for the sites must meet all evaluation criteria. Based on the evaluation, U.S. EPA selected its preferred alternative, called the Proposed Plan.

The Proposed Plan includes several measures to eliminate the public health and environmental threats posed by the sites.

Approximately 30,000 cubic yards of soils and sediments contaminated with PCBs would be excavated. A total of 800 cubic yards of material contaminated with low levels of PCBs and high levels of lead will also be removed. The PCB-contaminated materials would be treated with extremely high temperatures in an incinerator. Air pollution control measures would be used during incineration to prevent any contamination from being released into the air.

The high temperatures would permanently destroy the PCBs, and most other chemical contaminants. Metals present in the soils or sediment would not be destroyed and will remain in incinerator ash residue. If the ash residue is not found to be contaminated, it would be placed back

into the excavated areas. Contaminated residue and lead-contaminated soils and sediments would be treated with bonding agents which would immobilize the metals within a cement-like material. This treatment, called stabilization/fixation, would make the metals resistant to leaching from the ash into ground water or surface water.

Contaminated incineration residues treated by stabilization/fixation would be disposed of in a landfill which would be constructed on the Refuge. The landfill would be covered with a low-permeability cap and then planted with vegetation. Leachate and nearby ground water would be monitored for as long as necessary to make sure contamination does not enter the ground water beneath the site. The excavated area, and areas where only low levels of contamination are present would be covered with a low permeability cap to prevent rainwater from entering the soils below. The figure on page 3 illustrates the Proposed Plan.

U.S. EPA and other involved federal and state agencies believe the preferred alternative would protect human health and the environment, would meet state and federal requirements, would utilize permanent solutions, and would be consistent with the mission of the Refuge to provide a safe and protective setting for wildlife.

The preferred alternative addresses the principal threats to public health and

the environment by removing and treating the contaminated soils and sediments, and containing any contaminated residue. This alternative would provide for maximum long-term effectiveness by permanently destroying PCBs and other organic chemicals and immobilizing the metals. The preferred alternative would provide the greatest long-term effectiveness of all alternatives considered.

The preferred alternative would reduce the toxicity, mobility, and volume of the PCBs and other organics to the maximum extent possible. The toxicity and mobility of the PCBs would be permanently reduced by destruction of the PCBs. The mobility of the metals would be reduced by stabilization/fixation and containment in an industrial landfill. These measures would reduce the toxicity, mobility, and volume of contaminants to a greater degree than the other alternatives considered.

While the preferred alternative would take the longest amount of time to implement, measures to protect on-site workers would be used during the entire time the action is occurring.

All alternatives considered, including the preferred alternative, would utilize standard available technology and equipment.

The Interior and Illinois EPA both support U.S. EPA's preferred plan; community acceptance will be evaluated after the comment period.

ALTERNATIVES CONSIDERED FOR THE PCBs OPERABLE UNIT

No Action:

Monitor, fence or restrict site access and use.

Alternative 1:

Excavate contaminated soils and sediments; incinerate PCB-contaminated soils and sediments; stabilize and fix soils and sediments contaminated with PCBs and metals; place stabilized materials in an on-Refuge PCB landfill; place cap on remaining contaminated soils and sediments; place low-permeability caps over remaining non- and low-level contaminated materials.

Alternative 2:

Excavate contaminated soils and sediments; stabilize and fix soils and sediments contaminated with PCBs at levels greater than 1,000 parts per million (ppm); place in an on-Refuge PCB landfill; place cap over remaining contaminated materials; place low-permeability caps over remaining non-or low-level contaminated materials.

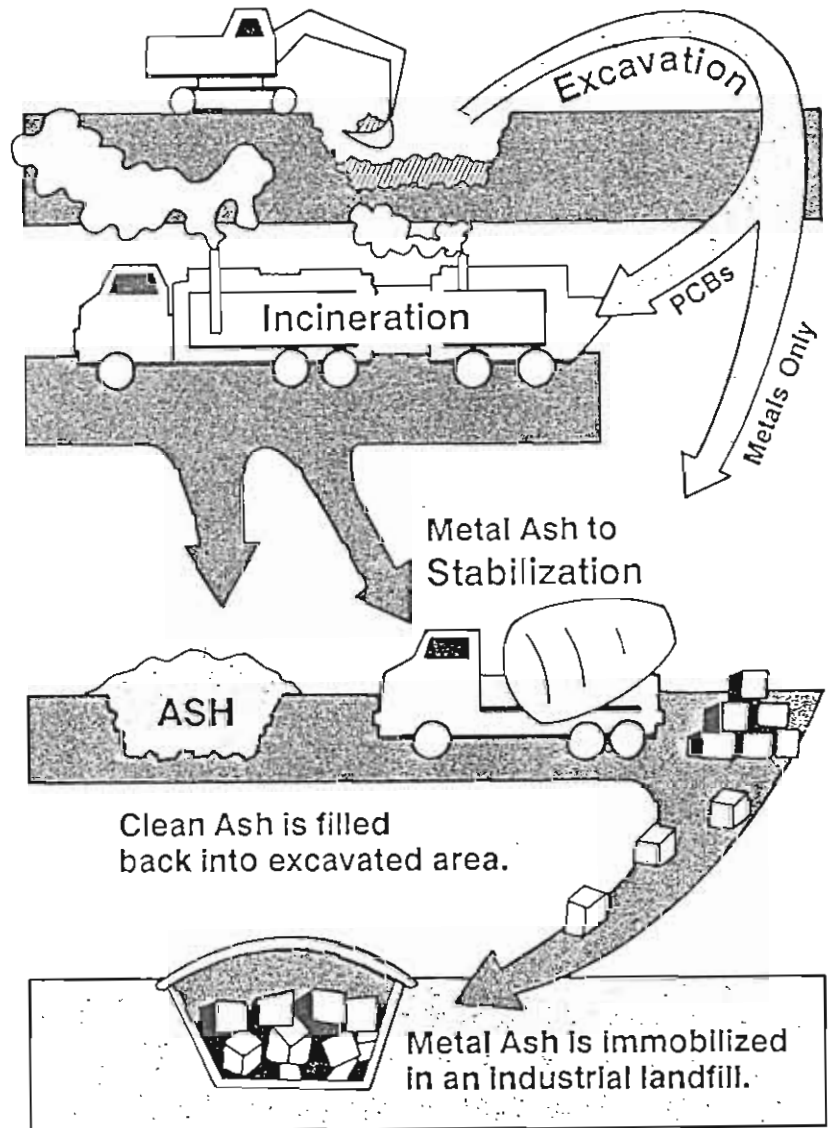
Alternative 3:

Excavate contaminated soils and sediments; incinerate soils and sediments contaminated with greater than 5,000 ppm PCBs; stabilize and fix excavated materials contaminated with PCBs at levels greater than 1,000 ppm; place in an on-Refuge PCB landfill; place low-permeability caps over remaining non- or low-level contaminated materials.

Alternative 4:

Excavate contaminated soils and sediment; stabilize/fix materials contaminated with PCBs at levels greater than 5,000 ppm; place treated materials in off-Refuge PCB landfill; place low-permeability caps over remaining non- or low-level contaminated materials.

U.S. EPA's Proposed Plan: PCBs Operable Unit



How U.S. EPA Chooses a Cleanup Solution.

U.S. EPA identifies potential solutions for cleaning up a Superfund site during an evaluation called a "feasibility study." Each potential remedy is then examined based on its applicability to site conditions; whether it would be effective, and its cost.

Cleanup alternatives that would not be appropriate are elim-

inated during this initial screening process. However, several feasible alternatives usually remain for further consideration.

U.S. EPA evaluates these remaining "remedial alternatives" using nine factors, or criteria. The cleanup action finally chosen must meet all nine criteria. The nine factors are presented below as a series of questions.

Will it reduce the threat posed by the site?

U.S. EPA evaluates the potential cleanup solutions to determine the way in which they would protect public health and environment from the threat posed by the site. The remedy finally chosen must reduce, eliminate, or control any health and environmental risks posed by the site.

Does the method comply with related environmental laws and regulations?

U.S. EPA evaluates the cleanup options to make sure they conform with related federal, state, and local regulations. These "applicable, or relevant and appropriate requirements" are called ARARs.

How long will the cleanup action effectively protect the community?

U.S. EPA considers how permanently a potential cleanup action addresses the health and environmental threat. The action finally chosen must be either permanent or reliable for many years after it has been put into place.

How well does the method solve the contamination problem?

U.S. EPA evaluates how effectively a potential remedy addresses the contamination problem. The cleanup method chosen must decrease the toxicity, movement, or amount of the hazardous materials present.

How quickly will the threat be eliminated and how will the cleanup affect the community?

Cleanup technologies often take several years to implement. During those years, the health or environmental threat may

remain in place. U.S. EPA evaluates the length of time required and potential impact of the cleanup on the community.

Can the remedy be carried out?

U.S. EPA evaluates the potential cleanup remedies to determine if the needed materials and services can be readily obtained. If not, the remedy may be impractical for the site.

How much will it cost?

U.S. EPA considers the costs associated with each potential remedy. Both short and long-term costs are calculated into the future. The remedy chosen would be the least expensive among alternatives offering the greatest protection.

What does the state environmental agency think about U.S. EPA's choice?

Before making a final decision, U.S. EPA considers the opinion of the state environmental agency. Frequently, the state is involved from the start in the environmental studies leading to U.S. EPA's choice.

How does the community view U.S. EPA's choice?

After evaluating the possible cleanup methods, U.S. EPA presents its choice, called the "Proposed Plan." After the plan is released, community members may give written or oral comments to U.S. EPA during a formal public comment period. Before making a final decision, U.S. EPA must consider all public comments and respond to them in a document called a Responsiveness Summary. U.S. EPA believes that the community's comments are important and often bring up issues which have an impact on the cleanup remedy finally selected.

GET INVOLVED

Your input on the proposed cleanup actions and the other potential cleanup remedies presented in the feasibility study (FS) is encouraged by the U.S. EPA. Comments provided by residents and other interested parties are valuable in helping U.S. EPA select a final remedy for the site.

There are two ways for you to provide input during the public comment period:

1. You may send written comments to MaryAnn Croce, the community relations coordinator for the Crab Orchard site. Her address is listed under "For More Information" on page 8. Comments must be postmarked by September 16, 1989.

2. You may submit oral comments to U.S. EPA during the public hearing listed on page 1. A court reporter will be present to provide a written record of the comments.

After the public comment period is concluded, U.S. EPA will review and consider the submitted comments when making its final decision on the site. The final actions chosen for the Crab Orchard site may, therefore, be different than the preferred alternative in the Proposed Plan.

U.S. EPA will respond to all significant comments in a document called a Responsiveness Summary. The Responsiveness Summary will be attached to the Record of Decision (ROD) for the site which will be available to the public. You are encouraged to review the Proposed Plan, FS and other documents related to the site, which are available in the site information notebooks (repository) listed on page 8.

If you have any questions about the Crab Orchard site comment period, please contact MaryAnn Croce at U.S. EPA's toll free number: 1-800-572-2515.

GLOSSARY

TECHNICAL TERMS

Chemicals of Concern

Cadmium - A metal that is used to coat other metals and as a paint additive. Cadmium is highly toxic to fish and wildlife and toxic to humans. Dust or fumes containing cadmium can be fatal if they are inhaled.

Chromium - A metal used to protect against corrosion and to help paint adhere to metal. Some forms of chromium may cause skin diseases or cancer.

Cyanide - Primarily used in ore extraction, electroplating, and metal treatment. Cyanide can be absorbed into the blood and block the ability of blood to absorb oxygen. Exposure to large amounts of cyanide at once may cause death in minutes. Early signs of cyanide poisoning include dizziness, numbness, rapid pulse, and nausea. Long-term exposure to small amounts of cyanide compounds may cause appetite loss, weakness, and dizziness.

Lead - A metal used for many purposes, including paint, batteries, and other products. Lead can be toxic when ingested or when dust or fumes containing lead are inhaled. It accumulates in the body and can build to dangerous levels over long periods of time. Lead can cause brain, bone, or nerve damage.

PCBs - Polychlorinated biphenyls. PCBs are a family of compounds used in electric transformers, as insulators and coolants, in lubricants, carbonless copy paper, adhesives, and caulking compounds. PCBs do not break down to harmless compounds. Instead, they remain in the environment for many years. PCBs also can be stored in human and animal tissue after exposure. U.S. EPA banned the use of PCBs, with limited exceptions, in 1976. Long-term overexposure to PCBs can cause liver damage and is suspected to cause cancer.

REGULATORY TERMS

Feasibility Study (FS) - A study conducted after the remedial investigation. The FS identifies and evaluates potential actions to resolve contamination problems at a Superfund site.

RCRA - The Resource Conservation and Recovery Act RCRA is a federal law that regulates the management and disposal of wastes. The law provides for tracking of the most wastes from generation to final disposal. This is sometimes called "cradle to grave" waste management.

Record of Decision (ROD) - A document issued by U.S. EPA that describes the corrective action to be taken at a Superfund site. The corrective action is selected after public comments are considered. Part of the ROD is a Responsiveness Summary. The Responsiveness Summary documents U.S. EPA's responses to public comments.

Remedial Investigation (RI) - A series of studies conducted by U.S. EPA to determine the extent and nature of a contamination problem at a Superfund site.

TSCA - The Toxic Substances Control Act - TSCA is a federal law that regulates the manufacture of many chemical substances. The 1976 law requires that risks associated with new chemical substances be reviewed by U.S. EPA before they are introduced into the marketplace. TSCA also regulates the production of existing chemical substances. The manufacture and disposal of PCBs are regulated by TSCA.

MAILING LIST

If you did not receive this fact sheet in the mail, you are not on our mailing list. If you wish to be placed on the Crab Orchard site mailing list, please fill out this form, detach, and mail to:

MaryAnn Croce (SPA-14)
Office of Public Affairs
U.S. EPA Region 5
230 South Dearborn Street
Chicago, Illinois 60604

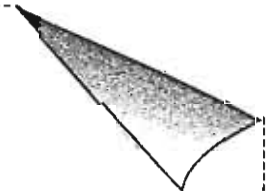
NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____

AFFILIATION _____



Job Corps Landfill

- A one-acre landfill near a pond. Not currently in use. This area of the refuge is open to deer hunting for two weekends per year.
- PCBs and lead are the contaminants of concern in this area, primarily in the soil.
- The major threat is posed to wildlife.

Old Refuge Shop

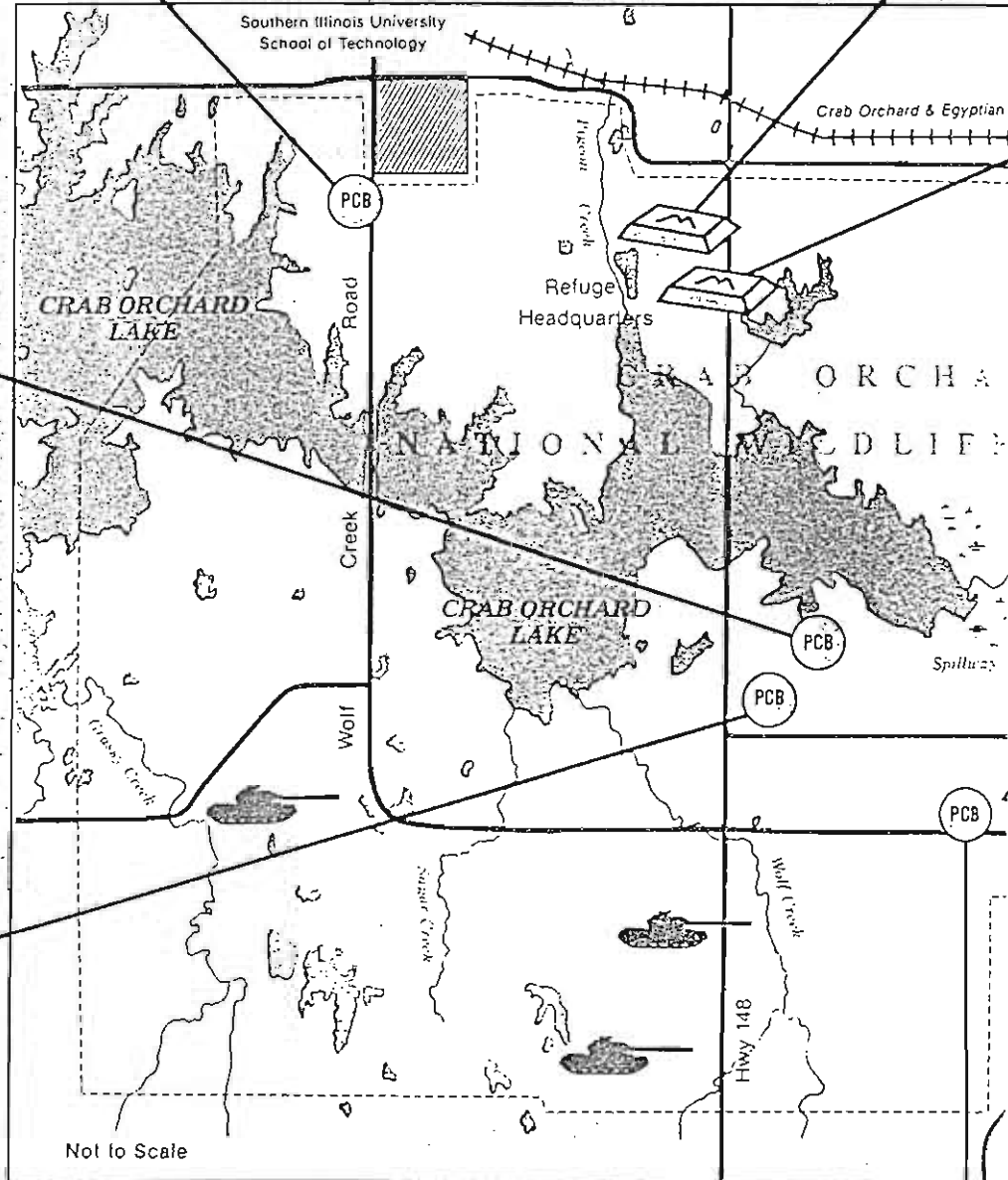
- Formerly used to treat with wood preservative to the public.
- Area is contaminated and cyanide.
- Primary risks are to wildlife especially burrowing rabbits, mice and chipmunks.

Area 9 Landfill

- Used for disposal of capacitor manufacturing wastes. The capacitors contained PCBs. The landfill is fenced and closed to the public.
- Employees of Olin Corporation, current users of Area 9, may be exposed to contaminants. A threat is also posed to small animals.
- PCBs and metals were present in soil and sediment.

Area 9 Building Complex

- Formerly used to manufacture electrical equipment containing PCBs. Now used to manufacture explosives.
- PCBs are the primary contaminants of concern.
- Area is closed to the public. Areas contaminated with PCBs are not accessible to employees. Therefore, threat to humans is low.
- Main threat is posed to small burrowing animals.



Water Tower Landfill

- Former landfill. Was disposal area by contractor operating at the refuge.
- Elevated levels of PCBs in soil.
- No significant risk to humans due to dense vegetation. Risk to small burrowing animals.

Crab Orchard Sites Williamson County, Illinois

Fire Station Landfill

- Disposal area bordering an open field. The field was previously used for storing mining machinery and as a landfill.
- Elevated levels of lead were found in the soil. The ground water contained elevated levels of metals.
- Primary risk is posed to wildlife.

The Crab Orchard National Wildlife Refuge is owned by the U.S. Government and is currently operated by the U.S. Fish and Wildlife Service (FWS) of the United States Department of the Interior (Interior). The refuge consists of approximately 42,000 acres of land. The land is used as a wildlife refuge and for recreational, agricultural, and industrial purposes.

The U.S. Department of Defense (DOD) administered the Refuge during World War II. During DOD administration, industrial tenants manufactured munitions and explosives. After World War II, DOD turned the refuge over to Interior.

Manufacturing facilities continued in operation on the Refuge. Explosives production continued to be the primary industry. Other industries included the manufacturing of PCB transformers and capacitors, fiberglass boats, corrugated boxes, plated metal parts, tape, flares, and jet engine starters.

The site was placed on the Superfund National Priorities List in 1987. However, because the site is a federal facility, Interior is responsible for assuring that the required work is completed and that adequate funds are available. U.S. EPA and FWS signed a legal agreement in 1986 which required that FWS conduct a remedial investigation/feasibility study (RI/FS). FWS in conjunction with Sangamo-Weston, have conducted the RI/FS since 1986. All work has been performed under the supervision and guidelines of U.S. EPA.

During the RI, U.S. EPA investigated 33 separate sites located in characteristically different areas. Each of the areas will be addressed as separate units, called operable units.

Four sites contaminated primarily with PCBs comprise the first operable unit. The four sites may also be contaminated with toxic metals such as lead and cadmium.

The second operable unit consists of those areas primarily contaminated with metals. There are three sites in this operable unit.

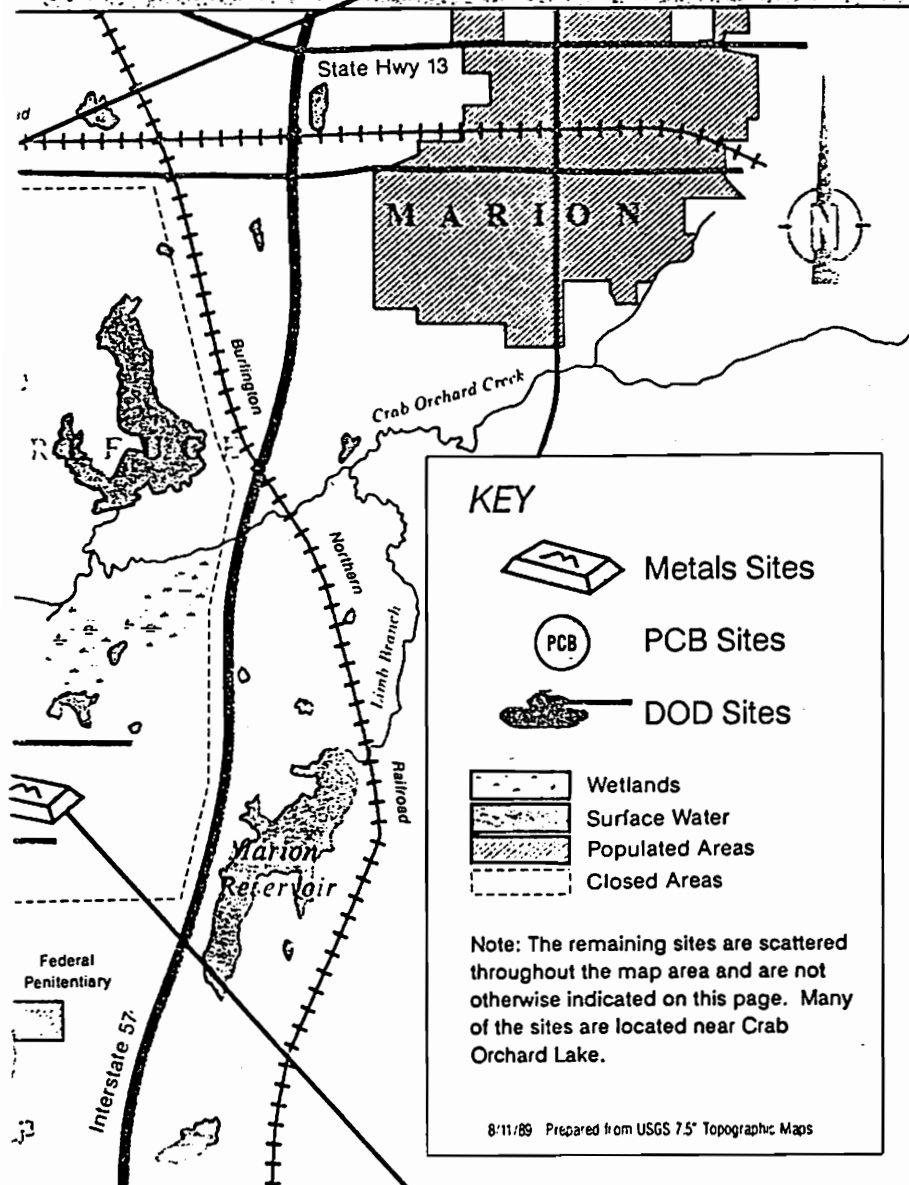
The third operable unit is comprised of areas contaminated with chemicals from munitions and explosives manufacturing.

The fourth operable unit is comprised of the remaining sites within the refuge. These sites will be addressed after further investigation.

Area 7 Plating Pond

- Reportedly received waste water from metal plating operations.
- Ground-water samples contained metals and trace amounts of PCBs.
- Site does not pose a significant risk to humans or wildlife.

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Area 7 Plating Pond

- Reportedly received waste water from metal plating operations.
- Ground-water samples contained metals and trace amounts of PCBs.
- Site does not pose a significant risk to humans or wildlife.

The Metals Operable Unit

(Metals sites are indicated on the map, pages 4-5)

Three sites comprise the Metals Operable Unit. These sites include the Area 7 Plating Pond; the Old Refuge Shop; and the Fire Station Landfill. Soil and sediment sampling in the three areas indicated the presence of several hazardous chemicals, including chromium, cadmium, lead and cyanide.

Sediments from the Area 7 Plating Pond contained chromium and other contaminants of less concern. Sediments in the drainage stream from the Old Refuge Shop are contaminated with cadmium, chromium, cyanide, and lead. The ground water in this area is contaminated with cadmium. Some soils samples from the Fire Station Landfill were contaminated with lead. Soil and ground water at this site also contain other contaminants of less concern.

A risk assessment was conducted as part of the site remedial investigation. The risk assessment characterized actual and potential health and environmental threats posed by the sites:

- Surface soils and sediments at the Old Refuge Shop pose a threat to humans and wildlife through direct contact with contaminated materials. Direct contact may result in accidentally inhaling or ingesting contaminants.
- Deep (subsurface) soils at the Fire Station Landfill present a threat to burrowing wildlife from inhaling and ingesting contaminants.
- Sediments or surface water which may be contaminated by runoff at the Old Refuge Shop and Fire Station Landfill may present a direct threat to wildlife, and a threat to humans through consumption of contaminated wildlife.

Contaminants were found in ground water and sediments at the Area 7 Plating Pond. However, the risk assessment indicates that these contaminants do not pose a threat to public health or the environment. This is primarily because these areas are restricted from public use. If the restrictions are changed and the chance of human contact increases, future risks may be higher unless remedial action is taken.

U.S. EPA's Proposed Plan for the Metals-Contaminated Sites

U.S. EPA considered several cleanup alternatives to address contamination problems at the three metals sites. Each alternative was evaluated using several factors. The evaluation factors, called criteria are explained on the insert included with this fact sheet. Any cleanup alternative selected for the sites must meet all evaluation criteria. Based on the evaluation, U.S. EPA selected its preferred alternative, called the Proposed Plan.

The Proposed Plan includes several measures to eliminate the health and environmental threats posed by the site. Approximately 9,000 cubic yards of contaminated soils and sediments would be excavated from the three sites. Some of the soils and sediments are composed of materials that allow water to pick up metals contained within the soil or sediment and carry them into the ground or surface water through a process called leaching. Therefore, soils and sediments would be treated by stabilization/fixation. In this process, soils and sediments are treated with bonding agents to immobilize the metals within a cement-like material. The process makes the contaminants less likely to leach from the soils or sediment.

The stabilized materials would be placed in an industrial landfill which would be constructed on the Refuge. The landfill would be properly lined and capped with compacted soil. The cap would minimize the amount of water that could enter the landfill and the stabilized soil and sediments. Upon completion, the landfill would be vegetated. Ground-water and leachate monitoring, and routine maintenance

would be part of the long-term requirements. Clean soil would be placed back into the excavated area. The Proposed Plan is illustrated in the figure on page 7.

U.S. EPA and the other involved state and federal agencies believed that the preferred alternative would protect public health and the environment, would meet state and federal requirements, would utilize permanent solutions, and be consistent with the Refuge mission to provide a safe and protective setting for wildlife.

The preferred alternative addresses the principal public health and environmental threats posed by the sites by removing and treating the contaminated soils and sediments and containing the treated materials. This alternative would be protective of public health and the environment. U.S. EPA believes that all of the considered alternatives would provide protection for the sites included in the alternative. All of the alternatives, including the preferred alternative, would meet all necessary state and federal requirements.

The stabilization/fixation process combined with containment of the treatment residues would provide for the maximum long-term effectiveness and permanence. Alternative 1 and the preferred alternative (Alternative 2) would provide for the highest volume of contaminated materials to be treated. Alternative 1 would use the same degree of treatment and containment as the preferred alternative. The only difference is that Alternative 1 would use an off-site landfill. The Agencies believe that it is easier to ensure the long-term permanence

and effectiveness of a landfill built on site. The other alternatives would require either no treatment, with the materials contained or left in place and covered, or excavation and treatment of a smaller volume of contaminated materials.

The preferred alternative and Alternative 1 provide treatment to the maximum extent possible for the hazardous wastes. The stabilization/fixation process would make the materials non-hazardous. While some of the other alternatives would use stabilization/fixation, those alternatives would treat a smaller volume of contaminated materials. Because all of the alternatives could present a threat to workers and the environment, protective measures will be used to reduce the threat to workers and the environment during the construction and implementation of any cleanup remedy chosen.

The preferred alternative and the other considered alternatives use standard available technologies. Several of the alternatives would use off-site disposal. Available capacity for off-site disposal is limited and could present a problem. In addition, upcoming Resource Conservation and Recovery Act regulations may require treatment of hazardous waste before land disposal. Illinois currently imposes restrictions on land disposal of hazardous waste in the state. This would make several of the alternatives (5, 6, 8, and 9) infeasible.

Interior and Illinois EPA both support the U.S. EPA's preferred alternative. Community acceptance will be evaluated based on the comment period, and will be described in the ROD for the site.

ALTERNATIVES CONSIDERED FOR THE METALS OPERABLE UNIT

No Action:

Leave materials in place; monitoring, fencing, or site restrictions only.

Alternative 1:

Excavate all contaminated soils and sediments; stabilize/fix excavated materials; place stabilized materials in a landfill constructed off the Refuge; place clean soil into excavated area.

Alternative 2:

Similar to Alternative 1 except that stabilized materials would be placed in a landfill constructed on the Refuge.

Alternative 3:

Excavate soils and sediments contaminated with lead; stabilize/fix excavated materials; place treated materials into landfill constructed off the Refuge; place a cap over the excavated area. This alternative would address only one of the contaminated sites in the Metals Operable Unit (the Fire Station Landfill).

Alternative 4:

Similar to Alternative 3, except that the landfill would be constructed on the Refuge.

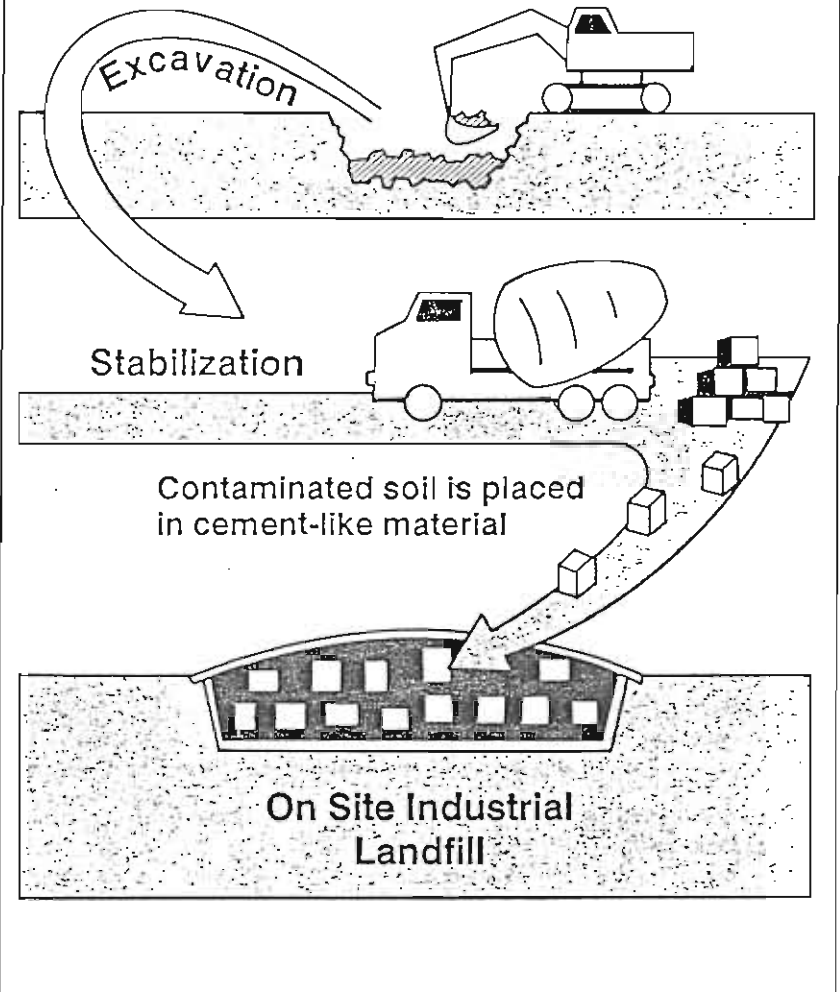
Alternative 5:

Excavate all contaminated soils and sediments; place into an off-site hazardous waste landfill soils and sediments that can leach metals; place non-hazardous soils and sediments into an off-Refuge landfill; place clean soil into excavated areas; place low-permeability caps over excavation and remaining contaminated areas. (Hazardous soils and sediments would be expected only at Fire Station Landfill and Old Refuge Shop.)

Alternative 6:

Similar to Alternative 5 except that landfills would be constructed on the Refuge.

U.S. EPA's Proposed Plan: Metals Operable Unit



Alternative 7:

Place a low-permeability cap over contaminated soils and sediments. This alternative only addresses two of the sites in the Metals Operable Unit (the Area 7 Plating Pond and Fire Station Landfill).

Alternative 8:

Excavate soils and sediments contaminated with high levels of lead; excavated material would be placed in an off-Refuge hazardous waste landfill; clean soil would be placed in excavation; remaining contaminated soils and sediments would be covered with a low-permeability cap. (This alternative addresses only the Fire Station Landfill.)

Alternative 9:

This alternative is similar to Alternative 8 except that the landfill would be constructed on the Refuge.

Get Involved !



COMMENT PERIOD

U.S. EPA welcomes public comments on the proposed plans and FS. A 30-day public comment period is being held from August 18 to September 16, 1989. During this time, interested parties are encouraged to read the site documents and send written comments to U.S. EPA. Site related documents are available in the information repositories listed on this page.

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

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

U.S. EPA
Region 5
230 South Dearborn
Chicago, Illinois 60604
Toll Free: (800) 572-2515
9 a.m. to 4 p.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 three repositories for the Crab Orchard site:

**Marion Carnegie
Public Library**
206 South Market Street
Marion, Illinois 62959
Contact: Mr. Ronald Reed
(618) 993-5935

**Crab Orchard National
Wildlife Refuge**
Refuge Headquarters
P.O. Box J
Carterville, Illinois 62918
Contact: Mr. Glen Smart

**Southern Illinois University
Morris Library**
Carbondale, Illinois 62901
(618) 453-2683

Please note that copying facilities are available only at the SIU Morris Library.



U. S. Environmental Protection Agency
Region 5
Office of Public Affairs (5PA-14)
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