SUPERFUND FACT SHEET

U.S. EPA REGION 6

PROPOSED PLAN OF ACTION

April 1988

THIS FACT SHEET WILL TELL YOU ABOUT:

- The North Cavalcade Street Superfund site in Houston, Texas
- Contamination at the site
- Alternatives for cleaning up the site
- EPA's proposed plan of action
- Opportunities for public involvement
- How to get more information

SITE BACKGROUND

The North Cavalcade Street Superfund site is located on Cavalcade Street in northern Houston approximately 1.5 miles east of the intersection of Interstate Highway 45 and Spur 137 (see Figure 1).

In 1946, a small wood preserving business named Houston Creosoting Company, Inc. was established at the site. The company used creosote and pentachlorophenol (PCP) in its operations.

Later, the property was used to secure a loan from the East End Bank of Houston. Subsequently, the loan was defaulted and the bank took over the property in 1961. Sometime between 1961 and 1964, the Houston Creosoting Company ceased operations. Since then the site has been used for light commercial purposes.

In early 1983, the Houston Metropolitan Transit Authority investigated the site for mass transit use and found evidence of buried contamination. The Texas Department of Water Resources (now the Texas Water Commission) conducted a further study and determined that the site may pose a threat to public health or the environment.

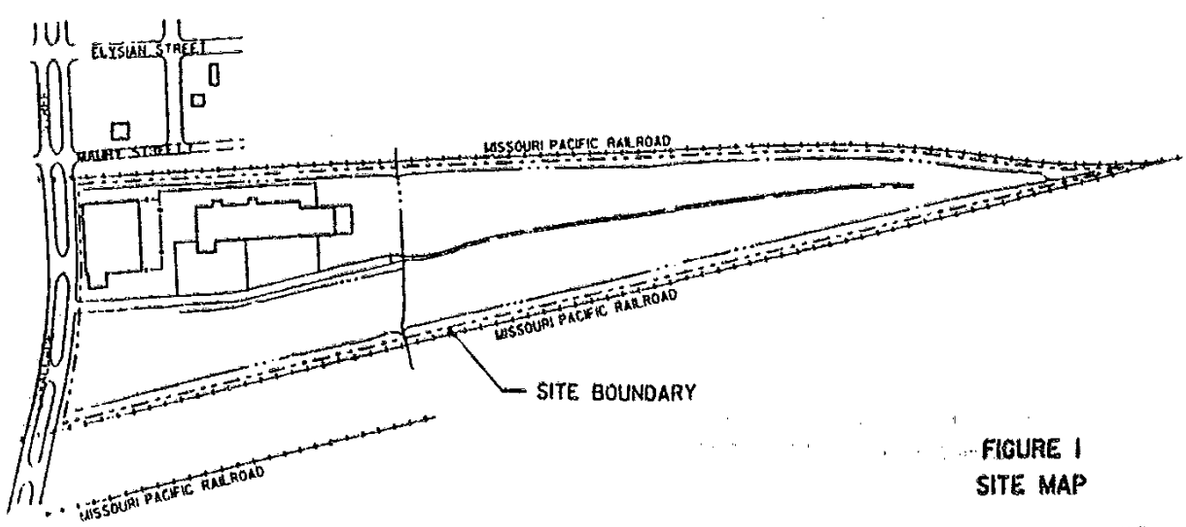


FIGURE 1
SITE MAP

May 11, 1988 7 p.m. Public Meeting Lindale Park Civic Club

In October 1984, the North Cavalcade site was proposed to the National Priorities List for hazardous waste sites and the U. S. Environmental Protection Agency (EPA) began an extensive site study. This study, called a Remedial Investigation and Feasibility Study (RI/FS), identified site problems and evaluated possible cleanup methods. The RI report was completed in October 1987, and the FS was just recently completed.

SITE CONTAMINATION

During the Remedial Investigation, EPA sampled surface water, ground water, and sediments to determine the location and extent of contamination.

Soils and Ground Water

Findings from this study showed contamination by creosote-type chemicals in soils and ground water; other wood preserving chemicals were not found. The contamination is located just below the surface in soils less than 10 feet deep in two areas covering approximately one acre, and in the ground water at a depth of 10-20 feet over an area approximately four acres (see Figure 2).

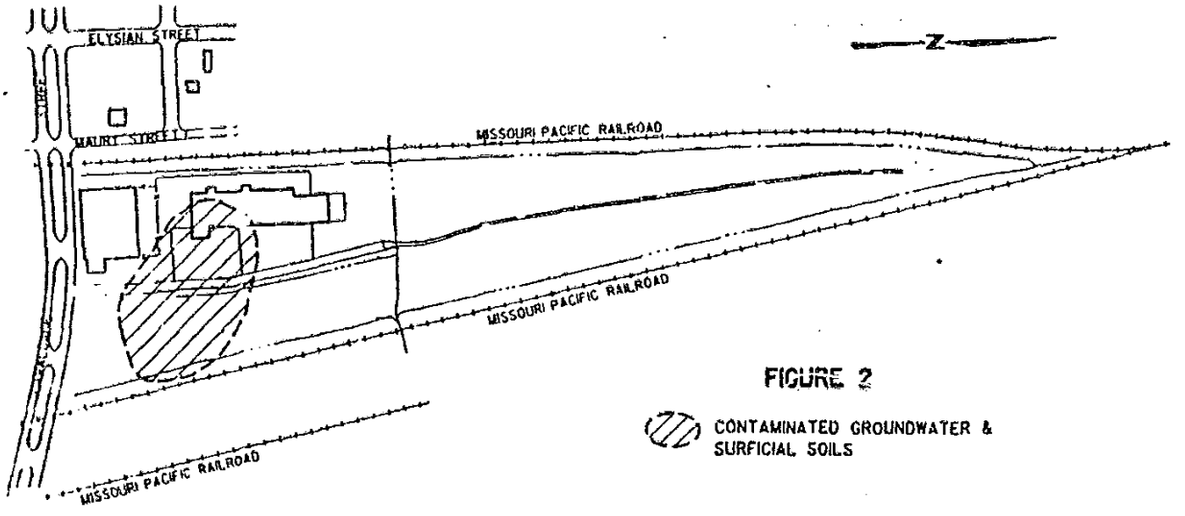


FIGURE 2

The contamination was also found in subsurface soils at a depth of greater than 20 feet over an area approximately six acres; however, this contamination is not exposed nor is it likely to spread or move.

Surface Water and Sediments

Wood preserving chemicals were found in the drainage ditch on the east side of the site. However, similar chemicals were not found in any surface water. Contamination from polychlorinated biphenyls (PCBs) was also found in sediments in one area near the railroad track on the east side of the site. EPA is continuing to gather data to investigate this area, and will address this contamination with a separate Feasibility Study.

HEALTH ASSESSMENT

Contamination from creosote-type chemicals is of particular concern because several of the chemicals, some polynuclear aromatic hydrocarbons (PAHs) and benzene, are known or suspected to cause cancer in humans. A health assessment was developed for the site to evaluate the potential threats to health from these chemicals. This assessment found that, while workers on the site and nearby residents are not presently exposed to these chemicals, any development of the site or movement of contaminants in the ground water could cause some increased risk to health.

Routes of exposure

The principal ways in which people could come into contact with the contaminants are through inadvertent ingestion or touching of surface soils, through breathing of chemicals released from surface soils in building or utility excavations, or thru ingestion of water at off-site wells. The subsurface soils do not pose a threat to public health because they are not and will likely never be exposed; contaminants are not likely to move out from these soils.

ALTERNATIVES FOR CLEANING UP THE SITE

EPA has examined five options for cleaning the site in accordance with the criteria required by the recently amended Superfund law. These options, called remedial alternatives, are described in the Feasibility Study and are summarized below. These options were subjected to an extensive examination as to their ability to permanently and significantly reduce the volume, toxicity, and mobility of site contaminants, and to protect public health.

All of the remedial alternatives (except No Action) include pumping and treating the shallow ground water, and adding a deed notice to identify the deeper subsurface contamination.

1. No Action

   *No treatment of soils or ground water.

   *Estimated cost: $300,000.

Under the No Action alternative, the contaminants would remain on the site and could spread off-site, possibly exposing area residents to contaminants in ground water. The contaminants would also pose a threat to any utility worker who may need to repair buried lines or pipes which cross the site. Costs associated with this remedy cover future ground water monitoring for 30 years.

The Superfund laws require that this alternative be considered only to serve as a baseline for comparing other cleanup remedies.

2. On-site Landfill

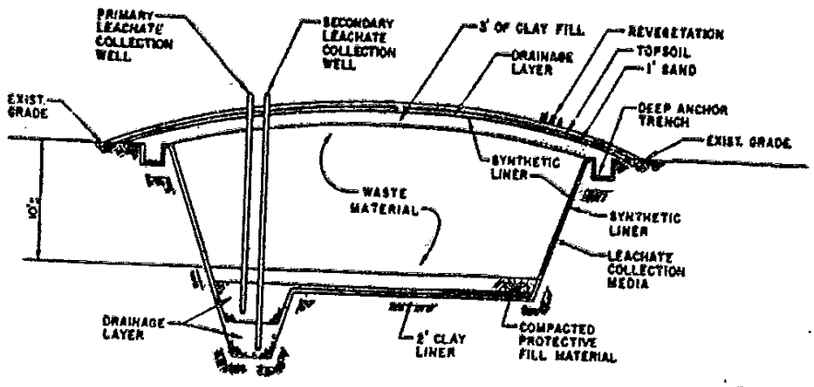
*Excavate contaminated surface soils.

*Place soils in a landfill on the east side of the site.

*Backfill, grade, and vegetate the excavated area.

*Restrict access to the landfill area with fencing.

*Estimated cost and construction time: $3.9 million and 24 months.



ON-SITE LANDFILL
REPRESENTATIVE SECTION

This alternative would prevent the further migration of contaminants if the landfill is properly maintained. It does not permanently reduce the volume of waste on-site. Local workers and residents could be exposed to the contaminants during the excavation.

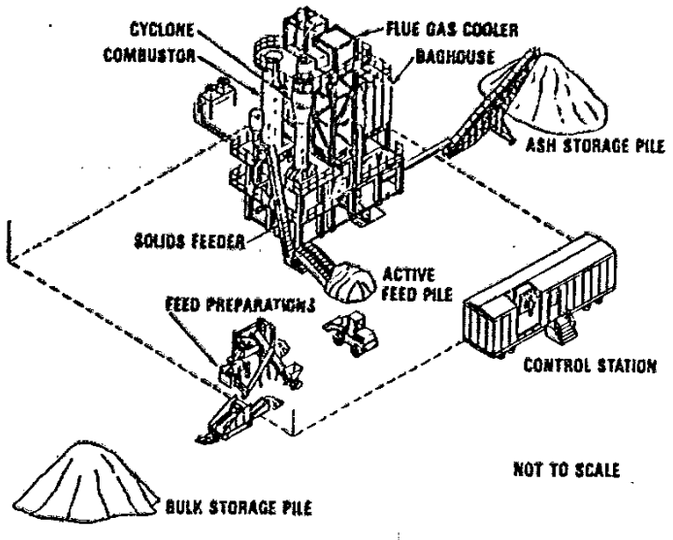
3. On-Site Incineration

*Excavate contaminated surface soils.

*Burn soils in an incinerator temporarily located on the east side of the site.

*Backfill, grade, and vegetate the excavated area.

*Estimated cost and construction time: $10.5 million and 24 months.



ON-SITE INCINERATION

This alternative would protect public health and the environment to the highest degree possible. However, the costs for this alternative are substantially greater than those for any other alternative. Local workers and residents could be exposed to the contaminants during the excavation.

4. On-Site Soil Flushing

*Inject solution into soils to move contaminants to ground water.

*Estimated cost and operation time: $4.8 million and 36 months.

This alternative would also protect public health and the environment. It would not require excavation and the resulting possibility of short-term exposure to contaminants. Pilot testing is needed to identify the best solution.

5. On-Site Biological Treatment

*Inject nutrients into soils to allow degradation by soil bacteria.

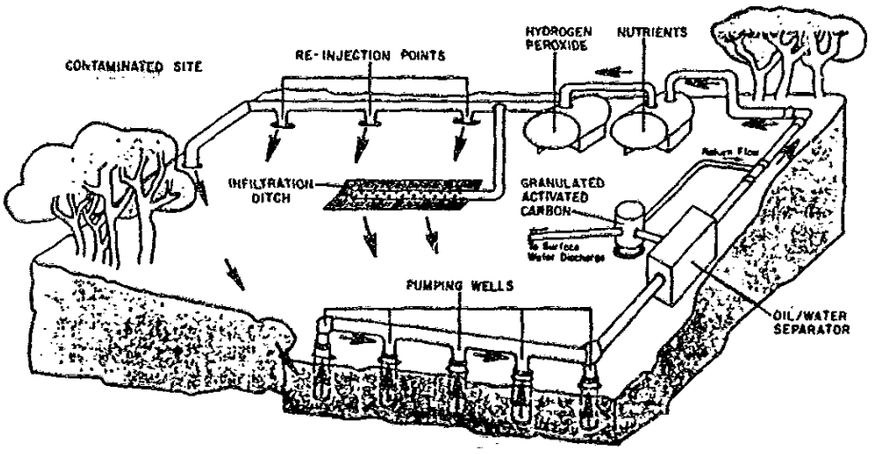
*Estimated cost: $3.6 million.

This alternative would also protect public health and the environment. It would not require excavation and the possible short-term exposure to contaminants. Pilot testing is needed to identify the optimal mix of nutrients to accelerate degradation by natural soil bacteria.

EPA'S PROPOSED PLAN OF ACTION

EPA has carefully considered all aspects of these alternatives and is now proposing a plan for remedial action that uses treatment to reduce the volume, toxicity, and mobility of the creosote chemicals. The proposed plan of action is Alternative #5, On-Site Biological Treatment.

This selection is based on the increasing amount of knowledge which EPA is amassing on the success of natural bacterial degradation of wood preserving chemicals, and the ability of this process to operate with a minimum of site disturbance and public exposure to the contaminants.



IN-SITU BIORECLAMATION

This alternative would involve digging a series of trenches over the area of surface soil contamination and adding water-carrying nutrients or fertilizer, vitamins, and oxygen to these trenches. The water would percolate downwards to encourage the natural soil bacteria to degrade the contaminants. Approximately 38 wells would be installed in these areas to collect the percolated water and contaminated ground water with another 44 wells used to reinject clean water. The water drawn from these wells would be run through an oil-water separator to remove any free creosote, and then through an activated carbon filter to remove any remaining contamination.

The collected creosote would either be recycled or burned off-site; nutrients would be added to the cleaned water and it would be returned to the percolation trenches. The process would continue until soil test borings and ground water samples indicate no contamination at health threatening levels.

OPPORTUNITIES FOR COMMUNITY INVOLVEMENT

The Superfund program emphasizes the importance of community involvement. A final decision on the cleanup option cannot be made until interested people have had an opportunity to review and comment on these alternatives and the proposed plan.

Public Comment Period

The Remedial Investigation and Feasibility Study reports summarized in this fact sheet are available for public review at the EPA Regional Office in Dallas and the locations listed below:

Ryan Civic Assn
The "I Can" Center
4503 Elysion
Houston, Texas

Houston Central Library
Texas & Local History Dept
500 McKinney
Houston, Texas

Dept of Health
Env Control Div
7411 Park Place
Houston, Texas

City Secretary's Ofc
910 Bagby
Houston, Texas

Houston-Galveston Area Council
3555 Timmons, Suite 500
Houston, Texas

TX Water Commission
Stephen F. Austin Bldg
1700 North Congress
Austin, Texas

Please submit your written comments by May 31, 1988, to:

Ellen Greeney
Superfund Community Relations
U. S. EPA (6H-SS)
1445 Ross Avenue
Dallas, Texas 75202-2733

Public Meeting

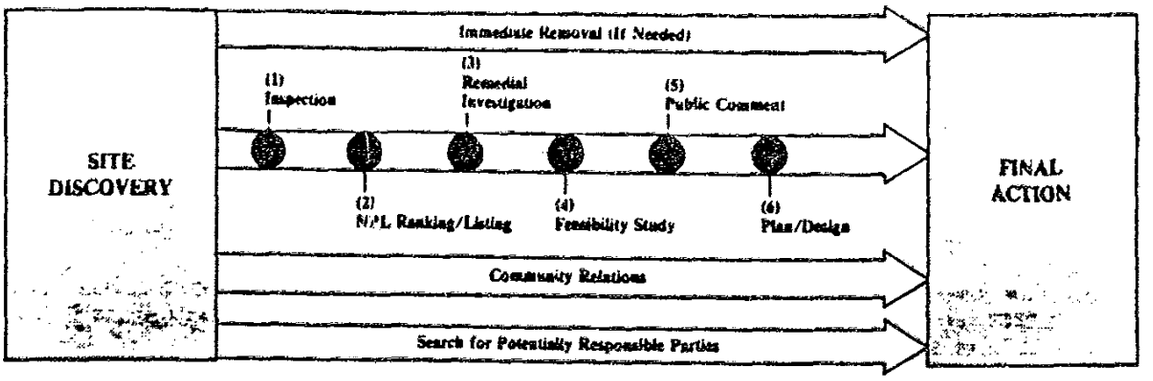
EPA will hold a public meeting to provide information, answer questions, and receive written or oral comments on these remedial alternatives:

Wednesday, May 11, 1988
7:00 p.m.
Lindale Park Civic Club
218 Joyce Street, Houston

ADDITIONAL INFORMATION

If you have additional questions or need further information, please contact these EPA representatives;

Ellen Greeney 214-655-6720 or Jim Pendergast 214-655-6735



U.S. EPA'S SUPERFUND PROCESS

In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), more commonly known as Superfund. This act authorizes EPA to respond to releases or threatened releases of hazardous substances that may endanger public health, welfare, or the environment. The 1980 law set up a fund of $1.6 billion to pay for the investigation and cleanup of sites where parties responsible for the problems are unable or unwilling to clean up the sites. In October 1986, Congress amended and reauthorized the Superfund law increasing the size of the fund to about $8.5 billion.

The figure above provides a brief explanation of how a Superfund response works.

The six steps shown in the figure are discussed below.

After a site is discovered, it is (1) inspected, usually by the state, which then (2) ranks the site, using a system that takes into account:

- Possible health risks to the human population;
- Potential hazards (e.g., from direct contact, inhalation, fire, or explosion) created by substances at the site;
- Potential for the substances at the site to contaminate air or drinking water supplies; and,
- Potential for substances at the site to pollute or harm the environment.

If the site's problems are serious enough, it will be listed on the National Priorities List (NPL), a roster of the nation's worst hazardous waste sites. Sites on the NPL are eligible for federal Superfund money.

Next, EPA develops a work plan and conducts a (3) Remedial Investigation (RI). The RI assesses the type of contaminants present, identifies the degree of contamination, and characterizes potential risks to the community. Following the RI, EPA does a (4) Feasibility Study (FS), to examine the feasibility of various alternative remedies. Upon completion of the FS, a (5) public comment period is held. A specific long-term action is then chosen and (6) designed. Once these planning activities are finished, the actual cleanup begins.

Ongoing activities during the Superfund process include:

- **Regular Monitoring.** EPA monitors the site during remedial activities. If a site becomes an imminent threat to public health or the environment during the RI/FS, EPA may conduct an emergency action, known as a removal.
- **Community Relations.** Throughout the Superfund process, EPA keeps area citizens and local officials informed about site activities and provides opportunities for the citizens to participate in decisions made about the site. Public comment periods are held at certain key points in the process to provide EPA with information about citizens' questions and concerns. This information will be considered when making decisions about cleanup activities at a site.
- **Search for Potentially Responsible Parties (PRP's).** Having initially designated a site as an NPL site, EPA undertakes a thorough investigation to identify parties who may be legally responsible for the waste contamination problem. The search for PRP's can and frequently does continue throughout the RI/FS process. Once identified, these parties are asked to sign a Consent Decree and to participate in the cleanup. If they refuse, they may face various legal actions.

GLOSSARY

Cleanup: Actions taken to deal with a hazardous waste site that could affect public health and the environment. The term "cleanup" is broadly used to describe a variety of response actions or phases or remedial action such as drum removal, fencing, capping, incineration, etc.

Feasibility Study: An evaluation of the possible long-term solutions to protect human health and the environment.

Ground water: Water found beneath the earth's surface that fills spaces between layers of sand, soil, and rock.

National Priorities List: EPA's list of the most serious uncontrolled or abandoned hazardous waste sites requiring possible long-term cleanup.

Remedial Investigation: An extensive investigation conducted at a Superfund site to determine the nature and extent of contamination.