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Facility Description

- Located in Memphis 642 acres (One square mile)
- Located 4 miles from the business district 5 miles east of the Mississippi River and 1 mile NW of Memphis International Airport
- Comprised of:
- 110 buildings
- 26 miles of railroad
- 28 miles of paved streets

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- 5.5 million sf of covered storage
- 6.0 million sf of open storage space

Mission: to receive, store, and ship items centrally managed by the DLA to all U.S. Military Entities

Facility Description Cont'd

- Major items include food, clothing, electronic equipment, petroleum products, construction materials, industrial supplies, and medical supplies
- 4+ million line items totaling 155,000 tons are received and shipped
- Inventory valued at >\$1.4 billion
- Facility employs 2,200 civilians and 16 military personnel with annual payroll of \$49.9 million

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During WWII the Depot served as internment center for 800 POWs



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RISK ASSESSMENT

ROUTE

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CONTACT POPULATION



EPA's risk assessment evaluates how you and others in your community might be affected by a site. Each of three things is necessary for a **POPULATION** such as people, animals or plants to be at risk from hazardous waste:

SOURCE

- A SOURCE of hazardous waste such as a landfill,
- A ROUTE to carry the hazardous waste away from the SOURCE to the POPULATION, such as air, soil or water,
- A way in which the POPULATION may come in CONTACT with the hazardous waste such as by breathing, touching, eating or drinking.

In the illustration, the main contamination SOURCE is the hazardous waste present in the landfill. The hazardous waste may be carried from the landfill through several possible ROUTES. Hazardous waste present in the landfill may come into contact with rainwater, and through a process called percolation, be carried as leachate into the soil or ground water located beneath the site. Rainwater also may carry the chemicals down the sides of the landfill, and through runoff, carry the chemicals into nearby surface soils, ponds, rivers or other surface water bodies. When the chemicals can evaporate or are in the form of dust particles, they may be carried by the wind.

Once in the air, water or soil, POPULATIONS of people, livestock, pets, wildlife and vegetation may come into CONTACT with the chemicals through breathing contaminated air, eating contaminated food or soil, drinking contaminated water, or coming into physical contact with contaminated water, sediments, or the waste itself.



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TABLE 1-1 DEFENSE DEPOT MEMPHIS TEANESSEE DUHH FIELD SITES Summary of Mazardous Material USE, Storage And Disposal Sites Site Locations are illustrated on Figure 4-1

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HAP KO.	LOCATION	MATERIALS/WASTE	QUANTITY, DIMENSIONS OR SIZE	REMARKS
-	NU QUADRANT	MUSTARD AND LEVISITE	NINE TRALNING SETS	DISPOSED IN 1955
~	NN CUADRANT	AMMONIUM HYDROXIDE &	7 POUNDS SOLID, 1 GAL. LIQUID	DISPOSED IN 1955
		GLACIAL ACETIC ACID		
m	NV QUADRANT	VARIOUS CREMICAL; DRIHO-	3,000 QUARTS/5 CU.FT 010	DISPOSED IN 1955
		TOL DTHE DIHYDROCHLORIDE		
ч	NN OUADRANT	POL AKD PAENT	13-55 GAL. ORUMS	
ŝ	NV QUADRANT	POL AND THINNER	32.55 GAL. DRUMS	DISPOSED IN 1955
•	NV DUADRAHT	HETATL BROMIDE	3 CUBIC FEET	DISPOSED IN 1955
~	NU QUADRANT	EYE OINTHENT	40,037 UNITS	DISPOSED IN 1955
B)	NV QUADRANT	FUMING NITRIC ACID	1, 700 BOTTLES	DISPOSED [H 1954
¢	NU QUADRANT	METHYL BROWIDE	3,768 DRE+CALLON CANS	DISPOSED IN 1954
₽	NU DUADRANT	ASHES AND HETAL VASTE	UNCERTALN	DISPOSED IN 1955 - (not shown on
5	KN CUADRANT	TRICHLORDACETIC ACIO	1,433 OHE-OUNCE BOTTLES	01SPOSED IN 1965 figure)
12	NV QUADRANT	SULPHURIC AND HYDROCHLORIC ACIDS	30 PALLETS	DISPOSED IN 1967
11	NH CUADRANT	MIXED CHEMICAL & ACID, DETERGENT,	32 CUBIC YARDS HIXED CHEMICALS	:
		ALUHINUM SULPHATE & SCOTUM	& ACID, 8,100 POUNDS SOLIDS	
7	NU QUADRANT	SOD LUN	OVE PALLET	:
÷	NY GUADRANT	SCOTUM PROSPHATE	ONE PALLET	DISPOSED IN 1968
91	HV QUADRANT	ACIÓ	ONE PALLET	015POSED IN 1969
‡7	NY BUADRANT	HERBICIDE, HEDICAL SUPPLIES &	UNCERTAIN	DISPOSED IN 1969
		CLEARING COMPOUND		
10	NU QUADRANT	ACID	UKCERIAIN	:
1	NH OUADRAHT	HARDWARE (NUTS & BOLTS)	UNCERTAIN	:
ຊ	NE DUADRANT	ASPHALT	UNCERTAIN	:
21	HE QUADRANT	SANITARY MASTE, CH CANISTERS,	UNCERTAIN	UTILIZED FROM 1955-60
		A SKOKE POIS		
22	NE QUADRANT	XXCC+3 IMPREGNITE	UNCERTAIN	• • •
ື	NE GUADRAHT	DRAINAGE DITCHES	:	NAY HAVE REC'D RUNOFF FROM STORAGE &
				DI SPOSAL AREAS
24	PISTOL RANGE	UNKNDAN	UNCERTAIN	LEACHATE DASERVED APRIL, 1989
22	BUILDING 1184	PESTICIDES & HERBICIDES	UNCERTAIN	CURRENTLY IN USE
. 26	NE OUADRANT	DRALM PIPE	UNCERTAIN	(not shawn an figure)

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 Dumm field sites

 Dumm field sites

 Summary of mazardous material use, storage and disposal sites

 Site locations are illustrated om figure 4-1

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ISTORS OR SIZE REMARKS	 HED PILES HED PILES DISPOSED IN 1948 UTILIZED IN 1946 UTILIZED FROM 1942-72 DISPOSED IN 1970 VASTE ZONE 3.5 TO 10 FEET BELOW CRADE, EHCOUNTERED AT WELL MV-16 GRADE, EHCOUNTERED AT WELL MV-16
DUANTITY, DIMEN	TWO SEMI-CONTAL TEN BINS UNCERTAIN UNCERTAIN UNCERTAIN ONE SEMI-CONTAL UNCERTAIN UNCERTAIN UNCERTAIN
MATERIALS/VASTE	BAUXIIE BAUXIIE FLUORSPAR FOOD SUPPLIES FOODS, BURNED CONSTRUCTION DEBRIS VARIOUS COMBUSTIBLES BAUXITE SODIUM, SODIUM PHOSPHATE, ACID, CHLORIMATED LIME & MEDICAL SUPPLIES MIXED SOLID VASTE MUNICIPAL WASTE
LOCATION	NE QUADRANT SE QUADRANT SE QUADRANT Su Quadrant Su Quadrant Nu Quadrant Nu Quadrant Ru Quadrant
IAP KO.	2 2 R R R R R R R R

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AEHA Investigations

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June - July 1982

- Installed 7 Monitoring Wells into the Fluvial Aquifer at Dunn Field
- Collected 13 Soil Samples and 6 Groundwater Samples
- Limited laboratory analysis did not analyze for specific organic compounds and metals

December 1986

- Analyzed 5 groundwater samples for specific organic compounds and metals
- Volatile organic compounds and metals were found

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Previous Remediation Projects **OH Materials - 1985**

- Past wood treating operations used the PCP dip vat to preserve wood pallets
- Extensive soil remediation was conducted at Bldg 737
- Soils removed to 10 ft depth
- Backfilled excavated areas, applied gravel and restored to natural appearance
- Recouped 60,000 gallons of Petroleum and hazardous materials from damaged containers in BLDG 873

Feasibility Study (RI/FS) Remedial Investigation/

- Law Environmental 1989-1990
- Installed 30 Monitoring Wells
- Volatile Organic Compounds and metals detected in the Fluvial Aquifer at Dunn Field
- 50 Surface soil and 24 subsurface soil samples collected from 8 soil borings
- Surface soil contamination found near materials handling and storage areas, drainage ways, and past spill sites

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Feasibility Study evaluated several clean up alternatives - recommended additional investigation





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National Priorities List

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- EPA's list of the most serious sites
- Possible long term remedial action required
 - Trust fund available for remedial action
 - Community relations
- Process includes:
- Identification
- Assessment
- ~ NPL Placement
- RI/FS Investigation
 - Final Remedy
- NPL list based on Hazard Ranking System Score



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Remedial Investigation **Objectives**

- Confirm presence or absence of contaminants at each site
- contaminants and direction of migration Evaluate concentrations of potential
- Evaluate lateral and vertical extent of contamination
- Evaluate routes of exposure and potential threats to public health and the environment
- Perform Feasibility Study to evaluate potential cleanup alternatives and recommend a cost effective solution

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)	TABLE 4-1)
	DDMT RI/FS OBJECTIVES	
Objective	RI Activity	FS Activity
Determine presence or absence of contaminants in each medium.	Confirm/establish presence or absence of contaminants at each source and in all pathways.	Evaluate applicability of no action alternative.
Determine types of contaminants.	Establish the "nature" of contaminants at each source and in pathways.	Evaluate the environmental and public health threat; identify applicable remedial technologies
Determine concentrations of contaminants.	Establish concentrations and concentration gradients.	Evaluate costs to achieve applicable or relevant and appropriate standards.
Determine the mechanism of contaminant release to pathways.	Establish mechanics of source/ pathway interfaces.	Evaluate the effectiveness of containment technologies.
Betermine direction of transport.	Establish pathways and transport routes and identify potential receptors.	Identify most effective points in the pathway to control transport of contaminants.
Determine boundaries of sources and pathways.	Establish horizontal/vertical boundaries of sources and pathways of contamination.	Evaluate costs to achieve ARARs identify applicable remedial technologies.
Determine environmental and public health factors.	Establish routes of exposure and the environmental and public health threat.	Evaluate applicable standards or risk; identify applicable remedial technologies.
Determine source and pathway characteristics with respect to mitigation (bench studies).	Establish the range of contaminants and their concentrations.	Evaluate treatment schemes.
r Orthertives for Remedial R	esponse Activities - Development Process (reference 75).	

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2 Source: Data Quality Objectives for



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United States Environmental Protection Agency Otfice of 60

Solid Waste and Emergency Response Publication 9200.5-008C November 1990

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The Superfund Cleanup Process

Superfund's cleanup process is designed to control short- and long-term threats to public health and the environment from uncontrolled releases of hazardous substances. The program responds to hazardous waste emergencies wherever they occur; but only sites listed on the National Priorities List (NPL) are eligible for long-term cleanup under Superfund.

How the Process Works

The major steps in the cleanup process are:

- Site discovery and investigation, usually by State officials.
- EPA evaluation of possible hazards posed by site contaminants and, if warranted, addition of the site to the NPL. Hazardous materials that pose imminent threats may be removed anytime during the cleanup process.
- Negotiations to encourage potentially responsible parties to pay for cleanup during each of the following steps.
- Detailed studies to assess what contaminants are present, how serious the contamination is, and what are the potential risks to the community. Studies are done to determine which cleanup methods may be most effective. This process can take 18 to 30 months and the average cost is about \$1 million.
- After a public comment period on EPA's proposed cleanup plan, selection of a cleanup method to be used at the site.
- EPA then designs a site-specific cleanup that implements its plan. This takes about 12 to 18
 months and costs an average of \$1 million.
- Actual cleanup. Depending on the method used, this step may take from one to six years.
 Cleanup of groundwater is one of the most difficult problems found at Superfund sites. It may take decades to cleanse groundwater.

THE SUPERFUND PROCESS



The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, also known as Superfund) was enacted in December 1980. The new law established a program to investigate and correct actual and potential releases of hazardous substances at sites throughout the United States. In 1986, Congress reauthorized the law under the Superfund Amendments and Reauthorization Act (SARA), and increased the size of the fund from \$1.6 billion to \$8.5 billion. The program was again reauthorized in November 1990 in the amount of \$5.1 billion dollars. U.S. EPA administers the Superfund program in cooperation with individual states.

The Superfund process involves several steps after a potential site is initially identified (1). After a preliminary inspection of the site is conducted by EPA or a state agency, the site is evaluated for its potential impact on human health and the environment (2). If the site poses a serious enough threat to the community, it is placed on the National Priorities List (NPL), a roster of the nation's worst hazardous waste sites (3).

Sometime after the site is placed on the NPL, EPA plans and conducts a remedial investigation and feasibility study (RI/FS) (4). the RI is a long term study to identify the nature and extent of contamination at the site. The FS evaluates remedial alternatives for site conditions.

If potentially responsible parties (PRPs) can be identified and are willing to cooperate with EPA, one or more of the PRPs may conduct the RI/FS. All work conducted by the PRPs is closely monitored by state and federal agencies. Monroe Auto is the PRP for this site.

After the public has had an opportunity to comment on the alternatives presented in the FS, EPA chooses the most appropriate alternative as a final remedy for the site. The chosen remedy is then designed and implemented (5).

At each site where a long term investigation and remedial action take place, EPA prepares a community relations plan to provide information about community concerns and present a plan to enhance communication between EPA and the local community throughout the duration of the project.

At any time during this process, EPA may conduct an emergency response action if the site becomes an immediate threat to public health or the environment.

Pathways of Contamination

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Small amounts of hazardous chomi-

cals and other substances may become dispersed as dust into the air

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AIR

There are several ways that hazardous waste sites may cause contamination problems in the surrounding community. The most common pathways are air, surface water, and ground water.

and carried by the wind. Some chemicals form a gas or vapor when they are present in the air. The concentration of airborne contaminants CONTACT WITH WASTE decreases as they are dispersed over a wide area. Airborne chemicals are sometimos harmful if they are inhaled When a hazardous waste site is accessible, it can or come in contact with the body, threaten public health. Direct contact with hazardous waste can sometimes cause illness, injury, or death. Precipitation **Dust or Gases** in Air Hazardous Waste Surface Water Table: Water Contaminante Ground Water Flow SURFACE WATER Precipitation failing on a hazardous GROUND WATER waste site picks up contaminants as it runs off the site. The runoff can drain loward an existing body of Hazardous chemicals and other substances may be water, potentially contaminating picked up by water as it moves through the waste. This recreational, lishing, or drinking contaminated liquid, known as leachate, carries chemicals water resources. and other substances through the soil into the ground water. This process can go on for years before reaching a ground water source or well. The contaminated ground water may be drawn through a well used for drinking water.





This glossary defines terms often used in Superfund publications. The definitions may have other meanings when used in a context other than hazardous waste management.

Administrative Order On Consent (AOC): A legal and enforceable agreement between EPA and the parties potentially responsible for site contamination. Under the terms of the Order, the *potentially responsible parties* (PRPs) agree to perform or pay for site studies or cleanups. It also describes the oversight rules, responsibilities and enforcement options that the government may exercise in the event of noncompliance by potentially responsible parties. This Order is signed by PRPs and the government; it does not require approval by a judge.

Administrative Record: The collection of documents which forms the basis for the selection of a response action at a Superfund site. EPA is required to establish an administrative record file for every Superfund site and make a copy available at or near the site. Often, it is the local library near a Superfund site that keeps the administrative record on file for public reference.

Artesian Well: A well made by drilling into the earth until water is reached which, from internal pressure, flows up like a fountain.

Aquifer: A water bearing stratum of permeable rock, sand, or gravel.

Backfill: To refill an excavated area with removed earth; or the material itself that is used to refill an excavated area.

Biodegradation: The technology that uses microorganisms to degrade contaminants.

Borrow Pit: An excavated area where soil, sand, or gravel has been dug up for use elsewhere.

Cap: A layer of material, such as clay or a synthetic material, used to prevent rainwater from penetrating and spreading contaminated materials. The surface of the cap is generally mounded or sloped so water will drain off.

Carbon Adsorption: A treatment system in which contaminants are removed from ground water and surface water by forcing water through tanks containing activated carbon, a specially treated material that attracts and bolds or retains contaminants. Cell: In solid waste disposal, one of a series of holes in a *landfill* where waste is dumped, compacted, and covered with layers of din.

Chlorinated Hydrocarbons: These include a class of persistent, broad-spectrum insecuicides that linger in the environment and accumulate in the food chain. Among them are DDT, aldrin, dieldrin, heptachlor, chlordane, lindane, endrine, mirex, hexachloride, and toxaphene. Other examples include TCE, used as industrial solvent.

Closure: The process by which a *landfill* stops accepting wastes and is shut down under Federal guidelines that ensure the public and the environment are protected.

Comment Period: Time provided for the public to review and comment on a proposed EPA action or rulemaking after it is published in the Federal Register.

Community Relations Plan (CRP): The formal plan of action used by EPA to inform and educate the public affected by a Superfund site. This plan addresses most of the avenues of communication to be used in a community, such as public open houses, fact sheets, workshops, and notices. It contains a list of interested citizens, citizens' groups, local *repositories*, Federal, State, and local officials. The CRP is a *CERCLA* requirement meant to address a community's needs and concerns. A copy of the Plan is part of the file with the *Administrative Record* in the local *repository*.

Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA): The Federal law that provides remedies for abandoned hazardous waste sites. CERCLA is commonly known as . Superfund.

Consent Decree: A legal document, approved and issued by a judge, formalizing an agreement between EPA and the parties potentially responsible for site contamination. The decree describes cleanup actions that the *potentially responsible parties* are required to perform and/or the costs incurred by the government that the parties will reimburse, as well as the roles, responsibilities, and enforcement options that the government may exercise in the event of non-compliance by potentially responsible parties. If a settlement between EPA and a potentially responsible party includes cleanup actions, it must be in the form of a consent decree. A consent decree is subject to a public comment period.



Dewater: To remove water from wastes, soils, or chemicals.

Evaporation Pond: A containment area where liquids are allowed to evaporate. In some cases a spraying mechanism is used to speed evaporation.

Feasibility Study (FS): 1. Analysis of the practicability of a proposal; e.g., a description and analysis of the potential cleanup alternatives for a site on the National Priorities List. The feasibility study usually recommends selection of a cost-effective alternative. It usually starts as soon as the *remedial investigation* is underway; together, they are commonly referred to as the "RI/FS." 2. In research, a small-scale investigation of a problem to ascertain whether or not a proposed research approach is likely to provide useful data.

Ground Water: The supply of fresh water found beneath the Earth's surface (usually in aquifers) which is often used for supplying wells and springs. Because ground water is a major source of drinking water, there is growing concern over areas where leaching agricultural or industrial pollutants or substances from leaking underground storage tanks are contaminating ground water.

Hazard Ranking System (HRS): The principal screening tool used by the EPA to evaluate risks to public health and the environment associated with abandoned or uncontrolled hazardous waste sites. The HRS calculates a score based on a formula which is the primary factor in deciding if the site should be on the National Priorities List, and if so, what ranking it should have in comparison to other sites on the list

Hazardous Waste: By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists. Health Assessment: An evaluation of data and information gathered on the release of hazardous substances into the environment to assess any current or future impact on public health.

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Heavy Metals - Metallic elements with high atomic weights, e.g., mercury, chromium, cadmium, arsenic, and lead. They can damage living things at low concentrations and tend to accumulate in the food chain.

Hydrocarbons: Chemical compounds that consist entirely of carbon and hydrogen such as petroleum, natural gas, and coal:

Impoundment: A body of water or sludge confined by a dam, dike, floodgate, or other barrier.

Inorganic Chemicals/Compounds: Chemical substances of mineral origin, not of basically carbon structure. These include metals such as lead and cadmium.

In-situ Biodegradation/Bioremediation: Treatment of soil in place to encourage contaminants to break down. It involves acrating the soil and adding nutrients to promote growth of micro-organisms.

In-situ Stabilization: "in place" stabilization. Please refer to Stabilization.

In-situ Vitrification: A technology used to treat hazardous waste in soils in place. This process electrically melts the waste media at extremely high temperatures then allows it to cool, creating an extremely stable, insoluable, glass-like solid. The contaminants are destroyed or immobilized and the total volume of material is reduced.

Lagoon: A shallow pond where sunlight, bacterial action, and oxygen work to purify wastewater. Lagoons are typically used for the storage of wastewaters, sludges, liquid wastes, or spent nuclear fuel.

Landfarm: To apply waste to land and/or incorporate waste into the surface soil, such as fertilizer or soil conditioner. This practice is commonly used for disposal of composted wastes.

Landfill: A disposal facility where waste is placed in or on land.



Long-term Remedial Phase: Distinct, often incremental, steps that are taken to solve site pollution problems. Depending on the complexity, site cleanup activities can be separated into a number of these phases.

Migration: The movement of oil, gas, contaminants, water, or other liquids through porous and permeable rock.

Memorandum of Understanding (MOU): An interagency agreement defining which agency has a responsibility.

National Priorities List (NPL): EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under Superfund. A site must be on the NPL to receive money from the Trust Fund (Superfund) for remedial action. The list is based primarily on the score a site receives from the Hazard Ranking System. EPA is required to update the NPL at least once a year.

Nonaqueous Phased Liquids (NAPLs): Liquid that does not mix with water.

Operable Unit: Term for each of a number of separate activities undertaken as part of a Superfund site cleanup. A typical operable unit would be the removal of drums and tanks from the surface of a site.

Operation and Maintenance: 1. Activities conducted at a site after a Superfund site action is completed to ensure that the action is effective and operating properly. 2. Actions taken after construction to assure that facilities constructed to treat waste water will be properly operated, maintained, and managed to achieve efficiency levels and prescribed effluent limitations in an optimum manner.

Organic Chemicals/Compounds: Animal or planproduced substances containing mainly carbon, hydrogen, and oxygen, such as benzene and toluene.

Petrochemicals: Chemical substances produced from petroleum in refinery operations and as fuel oil residues. These include fluoranthene, chrysene, mineral spirits, and refined oils. Petrochemicals are the bases from which volatile organic compounds (VOCs), plastics, and many pesticides are made. These chemical substances are often toxic to humans and the environment. Plume: A visible or measurable discharge of a contaminant from a given point of origin. It can be visible or thermal in water or visible in the air, such as a plume of smoke.

Polycyclic Aromatic Hydrocarbons or Polaromatic Hydrocarbons (PAHs): PAHs, such as pyrene, are groups of highly reactive organic compounds. They are a component of *creosotes* and can cause cancer.

Polychlorinated Biphenyls (PCBs): A group of toxic chemicals used for a variety of purposes including electrical applications, carbonless copy paper, adhesives, hydraulic fluids, microscope emersion oils, and caulking compounds. PCBs are also produced in certain combustion processes. PCBs are extremely persistent in the environment because they are very stable, nonreactive, and highly heat resistant. Chronic exposure to PCBs is believed to cause liver damage. It is also known to bioaccumulate in fatty tissues. PCB use and sale was banned in 1979 with the passage of the Toxic Substances Control Act.

Polynuclear Aromatic Hydrocarbons (PNAs): PNAs, such as naphthalene, and biphenyls, are a group of highly reactive organic compounds that are a common component of *creosotes*, which can be carcinogenic.

Potentially Responsible Parties (PRPs): Parties, including owners, who may have contributed to the contamination at a Superfund site and may be liable for costs of response actions. Parties are considered PRPs until they admit liability or a court makes a determination of liability. This means that PRPs may sign a *consent decree* or *administrative order on consent* to participate in site cleanup activity without admitting liability.

Record of Decision (ROD): A public document that explains which cleanup alternative(s) will be used at Superfund sites where Superfund pays for the cleanup. The Record of Decision is based on information and technical analyses generated during the *remedial investigation/feasibility study* and consideration of public comments and community concerns.

Remedial Action (RA): The actual construction or implementation phase of a Superfund site cleanup that follows remedial design.

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Remedial Design (RD): An engineering phase that follows the *remedial investigation/feasibility study* and includes development of engineering drawings and specifications for a site cleanup.

Remedial Investigation (RI): An in-depth study designed to gather the data necessary to determine the nature and extent of contamination at a Superfund site: establish criteria for cleaning up the site; identify preliminary alternatives for remedial actions; and support the technical and cost analyses of the alternatives. The remedial investigation is usually done with the *feasibility study*. Together they are usually referred to as the "RI/FS."

Remedial Project Manager (RPM): The EPA or state official responsible for overseeing remedial activity at a site.

Remediat Response: A long-term action that stops or substantially reduces a release or threatened release of hazardous substances that is serious, but does not pose an immediate threat to public health and/or the environment.

Removal Action: Short-term immediate actions taken to address releases of hazardous substances that require expedited response.

Repository: A facility where official Superfund documents are kept for public reference. Each Superfund site has at least one repository, usually the local library or other public facility.

Risk Assessment: The qualitative and quantitative evaluation performed in an effort to define the risk posed to human health and/or the environment by the presence or potential presence and/or use of specific pollutants.

Runoff: The discharge of water over land into surface water. It can carry pollutants from the air and land into receiving waters.

Sediment: The layer of soil, sand and minerals at the bottom of surface water, such as streams, lakes, and rivers that absorb contaminants.

Studge: Semi-solid residues from industrial or water treatment processes that may be contaminated with hazardous materials.

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Slurry Wall: Barriers used to contain the flow of contaminated ground water or subsurface liquid. Slurry walls are constructed by digging a trench around a contaminated area and filling the trench with a slurry of impermeable material that prevents water from passing through it. The ground water or contaminated liquids trapped within the area surrounded by the slurry wall can be exacted and treated.

Stabilization: The process of changing an active substance into inert, harmless material, or physical activities at a site that act to limit the further spread of contamination without actual reduction of toxicity.

Unilateral Administrative Order (UAO): A legally binding document issued by EPA directing the potentially responsible parties to perform site cleanups or studies (generally, EPA does not issue unilateral orders for site studies).

Volatile Organic Compounds (VOCs): VOCs are made as secondary *perrochémicals*. They include light alcohols, acetone, trichloroethylene, perchloroethylene, dichloroethylene, benzene, vinyl chloride, toluene, and methylene chloride. These potentially toxic chemicals are used as solvents, degreasers, paints, thinners, and fuels. Because of their volatile nature, they readily evaporate into the air, increasing the potential exposure to humans. Due to their low water solubility, environmental persistence, and widespread industrial use, they are commonly found in soil and ground water,

Wetland: An area that is regularly saturated by surface or ground water and, under normal circumstances, capable of supporting vegetation typically adapted for tife in saturated soil conditions. Wetlands are critical to sustaining many species of fish and wildlife. Wetlands generally include swamps, marshes and bogs. Wetlands may be either coastal or inland. Coastal wetlands have salt or brackish (a mixture of salt and fresh) water, and most have tides, while inland wetlands are non-tidal and freshwater. Coastal wetlands are an intregal component of estuaries.





