



Superfund At Work

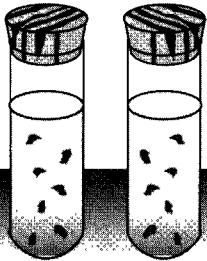
Hazardous Waste Cleanup Efforts Nationwide

Common Steps in the Removal Process

Addressing immediate threats



Sampling



Enforcement also plays a role in removal actions. Civil investigators and enforcement coordinators search out parties responsible for hazardous waste sites and order them to conduct or pay for cleanup. As of 1992, one third of the removals in Region 1 were conducted by site owners or operators, or hazardous waste generators and transporters.

When a dangerous situation is reported, an on-scene coordinator (OSC) is sent to the site immediately and supervises any activities undertaken. Reports of non-critical situations are forwarded to a site investigator who assesses the site to determine the need for a removal action. Superfund enforcement staff identify potentially responsible parties to negotiate the cleanup. If the situation is urgent, EPA conducts the removal and pursues the responsible parties to recover costs.

The emergency response team is on call 24 hours a day. OSCs must be flexible to continually shift priorities and juggle resources to meet new situations. OSCs are part of a nationwide response network that includes the U.S. Coast Guard, 15 other federal agencies, state environmental agencies, and municipal authorities.

While the removal program operates nationwide, the following cases in Region 1 illustrate the expertise required to eliminate immediate threats and potential hazards.

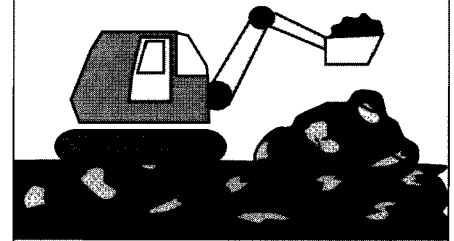
Success in Brief

The Superfund Removal Team

The U.S. Environmental Protection Agency (EPA) conducts a broad range of operations under the removal program from its Region 1 office in Boston, Massachusetts. Region 1 includes the states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont. The removal program is one part of a much broader Superfund effort aimed at cleaning up the nation's hazardous waste sites. The removal team quickly responds to hazardous waste emergencies and undertakes early actions at abandoned or uncontrolled hazardous waste sites. These activities generally cost less than \$2 million and last no more than 12 months. Removals are so named because much of the work involves physically *removing* something.

Many removals are dramatic — the emergency is clear and the response must be immediate. Removing hazardous waste requires precise efforts under dangerous conditions.

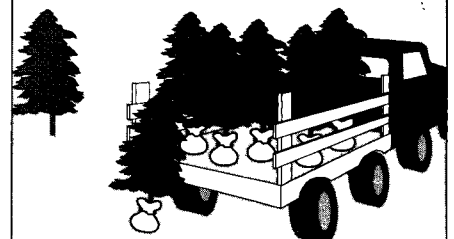
Excavating



Removing and disposing of containers and waste



Restoring sites



Robson Residence: A Time Bomb in the Basement

Silent Danger Goes Undetected for Years

In 1991, 18 years after her husband's death, an elderly Maine woman asked a local chemistry teacher for advice on dismantling the chemical laboratory her

Thousands of chemical containers filled the room

husband left behind. The teacher was concerned about the thousands of chemical containers, many with missing or poorly marked labels, stored in the basement.

The teacher became alarmed when Mrs. Robson showed him a bottle of anhydrous picric acid she had taken upstairs for cleaning. Aged picric acid is shock-sensitive and highly explosive.

The teacher immediately reported the situation to Maine's Department of Environmental Protection (DEP). His alert triggered the following emergency actions:

- DEP investigated the site and identified explosive, hazardous and radioactive compounds in the basement. The possibility of explosion and fire was very real.
- Four days later, the Explosive Ordnance

Disposal Team from Brunswick Naval Air Station eliminated the most immediate threat by removing and safely detonating a container of picric acid at the Searsmont landfill.

- EPA investigators later inspected the site, confirmed DEP's findings, and estimated that 2,000 containers of chemicals remained in the lab.
- EPA then established 24-hour security at the site and temporarily relocated Mrs. Robson so that the cleanup team could remove gas cylinders and other chemicals from the lab. Workers constructed a temporary shed in which to safely organize and store the chemicals.

Other shock-sensitive materials, including additional containers of picric acid, were discovered and secured in the lab.

- Workers also identified and isolated several containers of radioactive materials. With the help of the local volunteer fire department, EPA transported 533 unmarked containers to the Searsmont landfill, stabilized their contents, and then re-packed the materials into 55-gallon drums. Throughout the operation, EPA hired companies to dispose of the stabilized wastes.
- Aided by state and local authorities, EPA detonated 19 additional shock-sensitive

containers at the Searsmont landfill.

The residential well and septic system contained no evidence of contamination, so Mrs. Robson was able to return to her home. The basement was completely emptied and cleaned.

Within five months of discovery, all waste had been removed from the basement and the chemicals disposed of at approved facilities. The cleanup was a success because EPA worked closely with state and local officials who cooperated to ensure speed and efficiency throughout the effort.



Dangers of the Abandoned Chemistry Laboratory: vandals or even mice could have caused a major explosion.

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Danville: Burning Tires Smudge the Environment

An Ominous Blaze in Scenic New Hampshire

In the early evening hours of September 10, 1989, a fire of suspicious origin began in an eight-acre pile of tires off Old Johnson Road in Danville, N.H. A concerned citizen called the National Response Center (NRC) about three hours after the fire started.

A suspicious fire spewed smoke into the New Hampshire sky

The NRC is staffed and operated 24-hours a day by the U.S. Coast Guard (USCG). The NRC receives all reports of oil, hazardous substance and radiological discharges into the environment anywhere in the United States and its territories. The NRC in turn notifies the appropriate EPA Regional office and the USCG district office.

Within an hour, EPA dispatched an emergency response team to the Danville fire.

Dangerous chemical contaminants are commonly emitted from burning tires. If not controlled quickly, a tire fire can escalate to threaten the local inhabitants and the surrounding land, air, and water.

In this dump of five million tires, at least a million were burning, emitting intense heat and dense choking smoke. Nearly

60 fire departments from miles around hauled water throughout the night to try to contain the blaze. At least 50 people were evacuated from their homes. By dawn, it was clear that water would not put out the fire.

EPA recommended smothering the fire with soil. By 8:00 a.m. on September 11th, dozens of trucks were hauling soil to the site. The team worked around the clock to bring the fire under control.

By mid-afternoon, analysts determined that the off-site air was free of chemical contamination, and residents were allowed to return home. At midnight, workers finally extinguished the fire, but as a precaution, continued hauling, spreading, and stockpiling soil until the following dawn.

Superfund's emergency response role was complete, but EPA continued to watch the site for several more months.

For one week, small flare-ups occurred but were quickly smothered.



ered. Air samples collected at various points just above the new soil cover detected no unsafe contaminant levels.

Unwilling to risk reigniting the fire by digging test pits, Superfund staff checked the site's temperature throughout the ensuing months using aerial infrared photography and temperature probes. These methods revealed a few hot spots.

In the spring of 1990, temperature probes indicated that the hot spots had diminished. More soil was trucked to the site as a precaution. Workers dug six test pits and found the ground cool.

Months of testing confirmed that local wells were free of contamination

EPA also sampled nearby surface water and six nearby residential wells for contamination from the melted tires. Five monitoring wells were installed to determine whether contaminants were migrating from the site.

For the next five months, EPA analyzed samples from both the monitoring and residential wells. No contaminants were detected in any of these wells.

Due to the efforts of local firefighters and the Superfund emergency team, the fire was effectively extinguished without developing into a major pollution incident.

Wells Metal Finishing: A Potential Cyanide Catastrophe

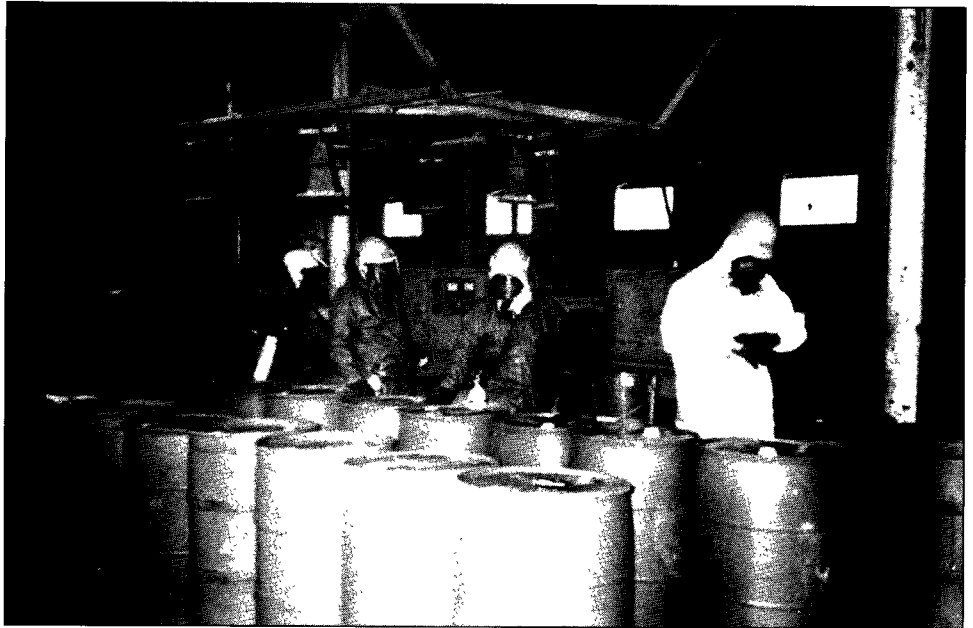
Removal Team Prevents Chemical Disaster

On September 13, 1990, Superfund emergency managers received an urgent phone call from the Massachusetts Department of Environmental Protection. Improperly stored and leaking chemical containers at Wells Metal Finishing near downtown Lowell presented an immediate danger.

Open, leaking, metal plating vats contained acids and caustics strong enough to burn or induce respiratory failure in anyone who touched the vats or breathed the fumes. Highly corrosive materials were seeping from drums into the building, damaging other containers of cyanide salts. Four drums were open or badly corroded. Had these salts mixed with the acids, the reaction would have produced lethal hydrogen cyanide gas.

Many people lived and worked nearby; small businesses, a condominium complex, and private homes surrounded the site. In addition, the leaking containers threatened Hales Brook which flows under Wells Metal Finishing and into the Concord River.

Municipal authorities offered their help to the EPA team. Police secured the area; the fire department stood by in case of fire or medical emergency; and the Chief Health Inspector was on the scene to address community concerns.



Clad in protective gear, members of the cleanup team examine barrels that have been encased to safeguard their contents. These external drums allow leaking and corroded containers to be moved safely.

In the next 48 hours, Superfund emergency workers:

- Sampled and analyzed plating solutions;
- Separated incompatible materials;
- Safely packed nine cyanide drums;
- Placed 54 leaking containers of unknown materials into larger drums;
- Pumped out 715 gallons of muriatic acid from a leaking plating vat; and
- Inventoried 162 drums, 40 plating baths, and 30 small containers for future disposal.

Removal Team Conducts Extensive Cleanup

The emergency team reported to Superfund managers that, although they had resolved immediate concerns, the site was

still dangerous and all remaining hazardous materials should be removed.

EPA ordered the building owners to conduct the removal. The owners did not comply, however, and so EPA took over the action. Between February and April 1992, EPA cleanup staff analyzed and organized the hazardous wastes and arranged for their proper disposal. The plating vats were pumped out and their contents drummed or shipped off site. The solids that had accumulated in the plating vats had to be pounded out with power hammers, a slow and dangerous job.

By May, all waste remaining on site was drummed and safely stored for final disposal, which took place in July 1992.

Westford Anodizing: Company Owners Clean Up Chemicals Following Emergency Removal

Hazardous Chemicals Stored in Open Vats

Westford Anodizing was a metals finishing facility located in a residential area of Westford, Massachusetts. Leaking and exposed hazardous wastes at the facility presented a potential threat to the local community. EPA inspections revealed multiple violations of federal solid and hazardous waste laws.

Concerned about the storage of 50 open drums containing cyanide, EPA's Criminal Investigation Division enlisted the support of the Resource Conservation and Recovery Act (RCRA) program, which is responsible for regulating the safe transportation, storage and disposal of chemical wastes at active facilities.

In August 1991, EPA removal program personnel and state RCRA personnel inspected the cyanide vats behind the building, noting incompatible substances next to each other in deteriorated containers.

Cyanide was found in a nearby stream

By September, EPA sampling of a catch basin and nearby stream indicated that cyanide had been released from Westford Anodizing. A repeat inventory of the plant's contents revealed 500 containers of both raw and waste materials containing cyanide, acids, and other compounds inside the building, two steel vats

outside containing cyanide sludge, and one above-ground tank containing cyanide crystals located next to the building.

EPA's Enforcement Program Proves Successful

Immediate cleanup actions were necessary, and Westford Anodizing agreed to perform the work under EPA supervision. Between November 1991 and January 1992, the company:

- Separated acids and cyanides into discrete areas;
- Fenced off cyanide vats and metal hydroxide containers; and
- Loaded and transported about 150 drums of hazardous waste to EPA-approved disposal facilities.

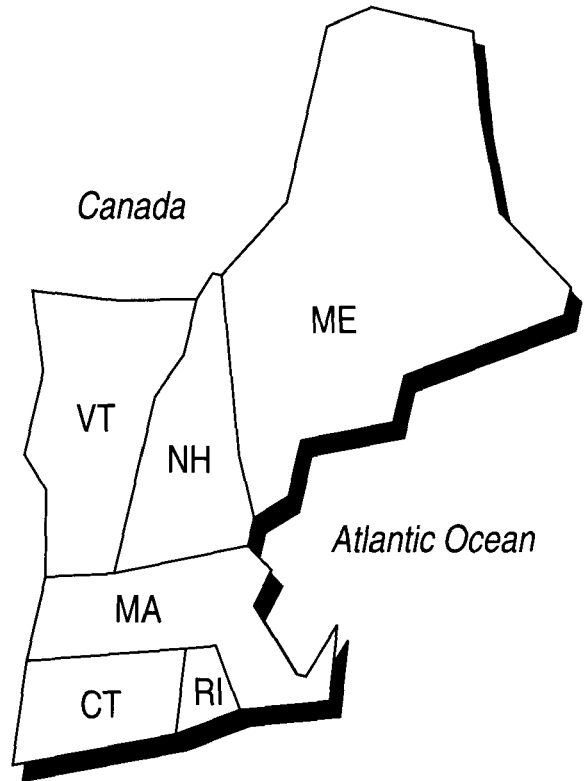
Superfund OSCs monitored this work, and supervised the cleaning out of the catch basin, sampling of stream sediments, and investigation of soil around the outdoor cyanide tank. These removal activities were completed satisfactorily and the work was finished in just four months.



Drums, containers and vats of chemicals presented a potential threat to the local community.

Superfund Enforcement At Work: The Removal Program in Region 1

EPA's Region 1



Region 1's removal program is successful for a number of reasons.

A team approach is applied to each removal case. An on-scene coordinator, an enforcement coordinator, and an attorney examine all aspects of a site. Together, they decide on the best course of action.

The removal team diligently applies the "enforcement first" policy, which has been successful in conserving Superfund dollars. Compelling responsible parties to conduct cleanups allows EPA to perform additional removals at other critical sites.

Recent bankruptcies in Region 1 have resulted in an increased number of abandoned hazardous waste sites. The increased workload means more future challenges for Superfund.

With a Regional removal budget stretched to the limit, the "enforcement first" policy is critical for conserving Superfund resources for sites where responsible parties cannot be identified, or are unable to pay for the cleanup.

In those cases when the Superfund must be used, cost recovery is pursued vigorously by the Removal Program's enforcement coordinators and attorneys at the Office of Regional Counsel. Region 1 has successfully recovered the costs of many "fund-lead" removal actions.

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