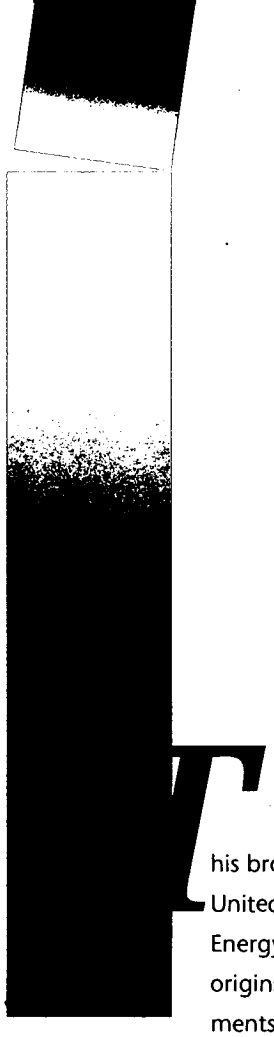
FUSRAP

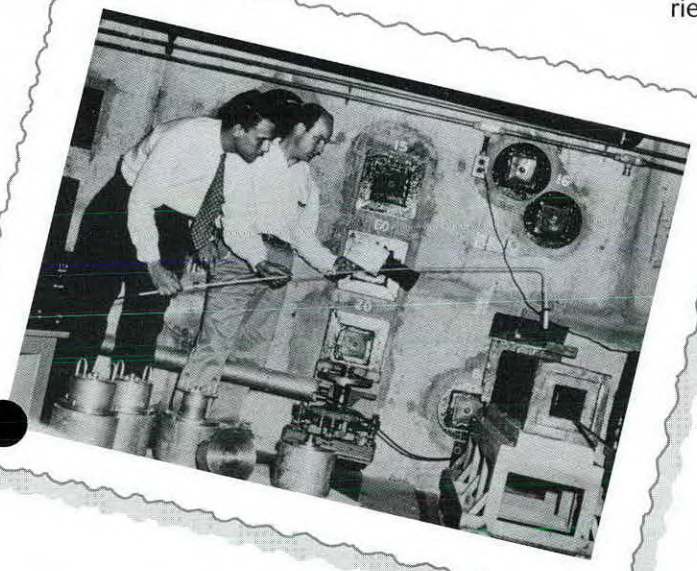
Formerly Utilized Sites Remedial Action Program



This brochure is published by the United States Department of Energy (DOE). It explains the origins, goals, and accomplishments of the Department's Formerly Utilized Sites Remedial Action Program (FUSRAP), a major environmental effort to clean up sites contaminated from past activities involving radioactive materials. FUSRAP has made significant progress in cleaning up these sites and ensuring that they meet today's environmental standards. This brochure is intended to provide members of the public, government officials, and affected property owners with basic information about FUSRAP and to improve understanding of the program's goals and activities.

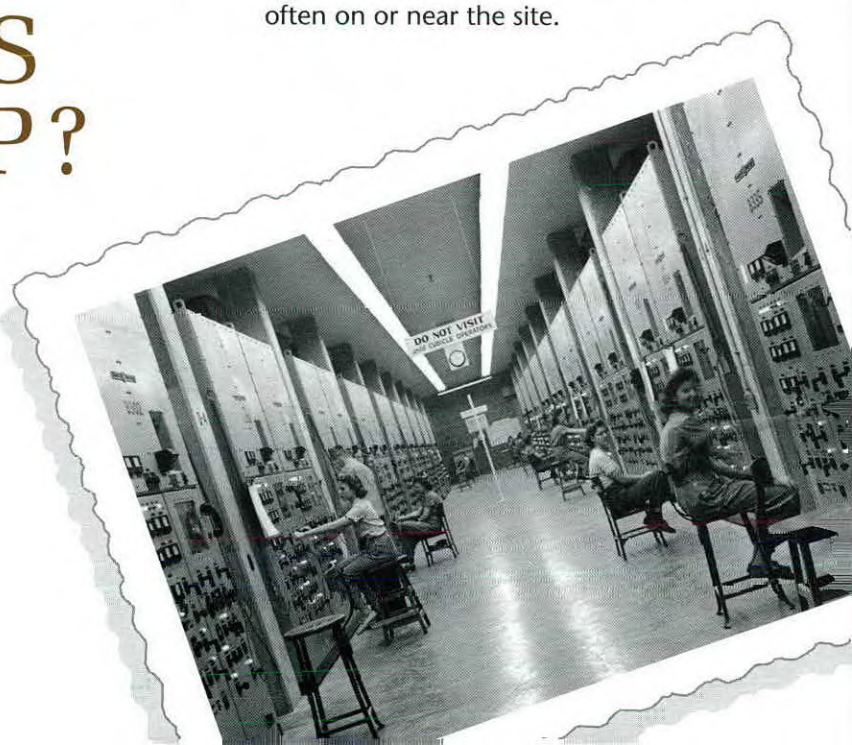
WHAT IS FUSRAP?

For most Americans, World War II is a distant memory or a lesson in a history book. But those who lived during that period remember the extraordinary efforts that Americans made to win the war.



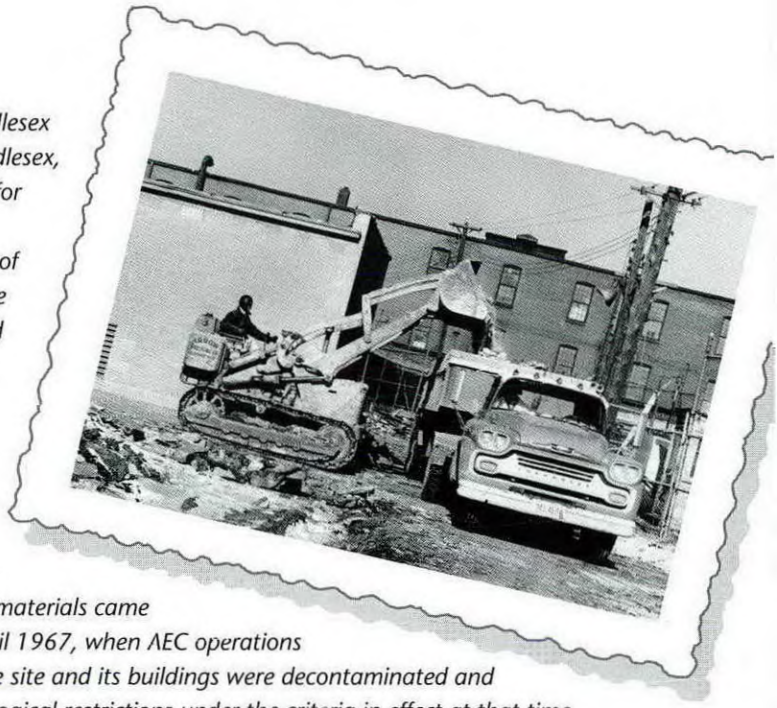
A major part of the war effort was the Manhattan Project, a secret program to develop an atomic weapon that would end the conflict. The Manhattan Project had access to virtually all the resources it needed. Chemical plants, laboratories, and production facilities throughout the country processed uranium ore and other radioactive materials as part of the urgent research and development efforts.

During those wartime years and the Cold War era that followed, wastes from uranium processing were handled in ways similar to wastes from other industrial processes. At the various plants or laboratories that processed uranium ore, waste materials were then disposed of in ways that were thought at the time to be safe—often on or near the site.



Because of the disposal methods and the subsequent demolition of buildings and earthmoving activities over the years, most of the radioactive wastes became dispersed throughout large volumes of soil and rubble. At some sites, wastes were spread by erosion or wind, and many offsite areas became contaminated. In addition, contamination remained on walls and building surfaces.

In the years since the war, as scientists have learned more about radiation, the waste disposal practices of the 1940s and 1950s are no longer acceptable. Consequently, those older sites—formerly used sites—must be cleaned up, and the cleanup is the responsibility of the Department of Energy, the agency that evolved from the Manhattan Project and the Atomic Energy Commission (AEC). To clean up the sites, the Formerly Utilized Sites Remedial Action Program, FUSRAP, was started in 1974.



As early as 1943, the Middlesex Sampling Plant (MSP) in Middlesex, New Jersey, was a busy hub for Manhattan Project activities. The plant received shipments of uranium and other radioactive ores, which were sampled and assayed, then packaged and shipped to other facilities across the country for processing.

After the war, MSP continued similar activities as part of the nation's atomic energy program. Radioactive materials came and went from the facility until 1967, when AEC operations there ceased. At that time, the site and its buildings were decontaminated and certified for use with no radiological restrictions under the criteria in effect at that time.

Overlooked during the decontamination, however, was the fact that, over the years, traces of contaminated materials gradually had been carried offsite by wind and rain. The radioactive materials accumulated in the yards of neighboring homes. A close look at MSP records later revealed that some radioactive materials apparently were trucked from MSP to the Middlesex Municipal Landfill a half-mile down the road.

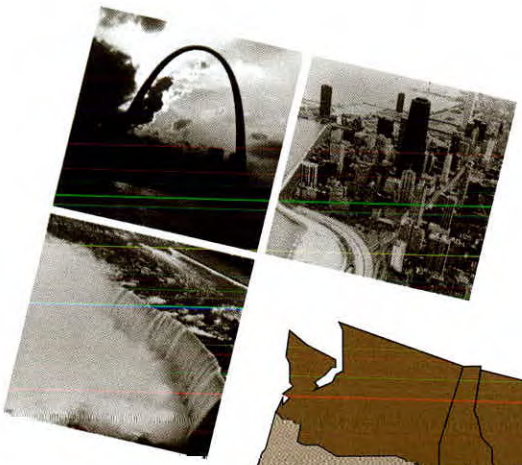
From 1969 to 1979, MSP was used as a training center by the Marine Corps. When it was returned to DOE in 1980, immediate action started under FUSRAP to clean up the residential properties. Radioactive materials were removed from yards and brought back to MSP, where they were stored on a specially constructed pad. By the end of 1981, the 31contaminated properties had been cleaned, and 35,000 cubic yards of contaminated materials had been placed in storage at MSP.

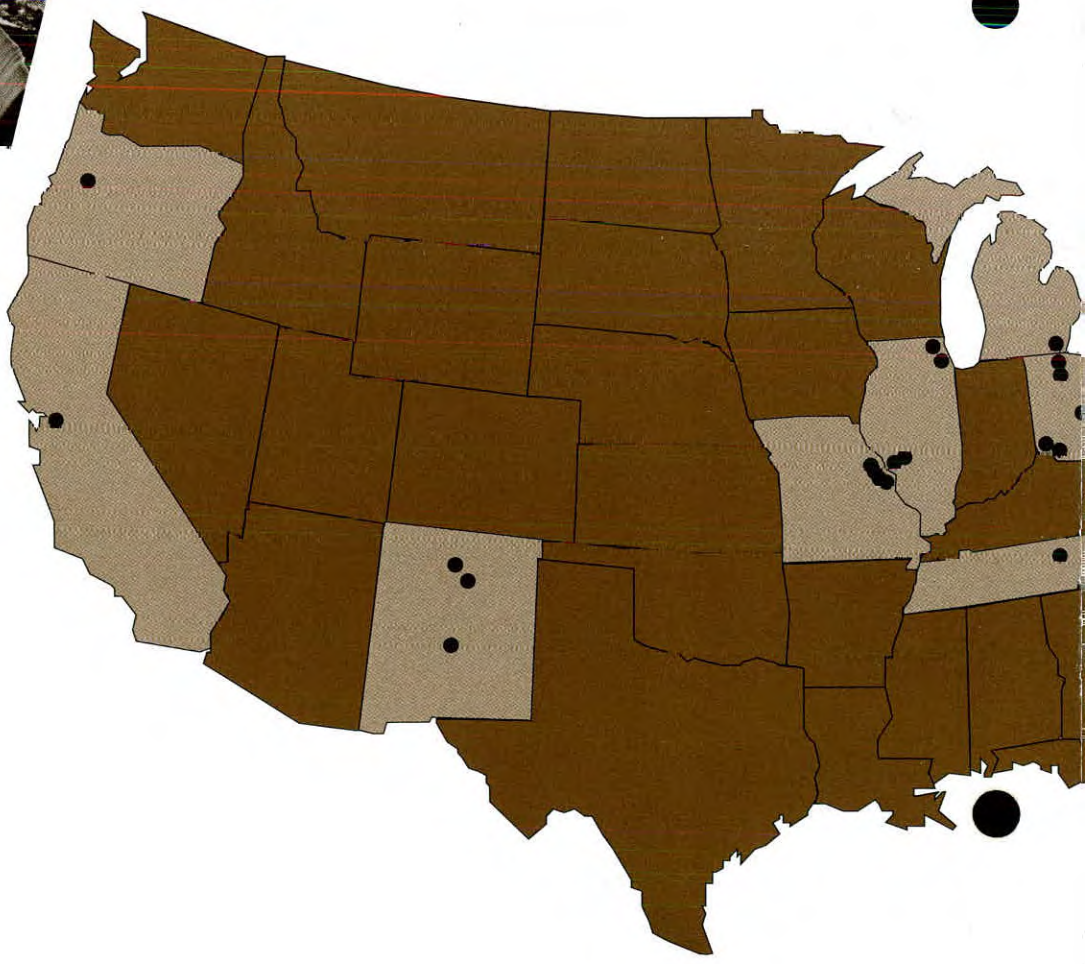
Meanwhile, at the Middlesex Municipal Landfill, radiological surveys had concluded that while there was no immediate danger, the level of contamination exceeds current guidelines. Therefore, in 1984 DOE began remedial action at the landfill. The contaminated material was excavated and returned to MSP from where it came. By 1986 the landfill was clean, and an additional 31,000 cubic yards of material had been stored at MSP.

Presently, MSP awaits final remedial action. The approximately 65,000 cubic yards of contaminated material removed from the residences and the landfill remain at the site in two carefully monitored storage piles. DOE publishes an annual environmental surveillance report on MSP (and similar sites around the country) to assure the public that the stored materials and the site itself pose no environmental threat. When a final remedy is selected for the low-level radioactive material, MSP will be cleaned up, and its story—after almost 50 years—will end. (See "What Remains to be Done.")

Early FUSRAP activities focused on combing through historical records just to identify sites involved in the Manhattan Project or early Atomic Energy Commission work. DOE has examined almost 400 such sites, reviewing old records and then performing radiological surveys. Most of these sites have been found to be clean, but by early 1994, 44 sites in 14 states had been identified as needing cleanup. Additional sites are added from time to time as DOE review continues.

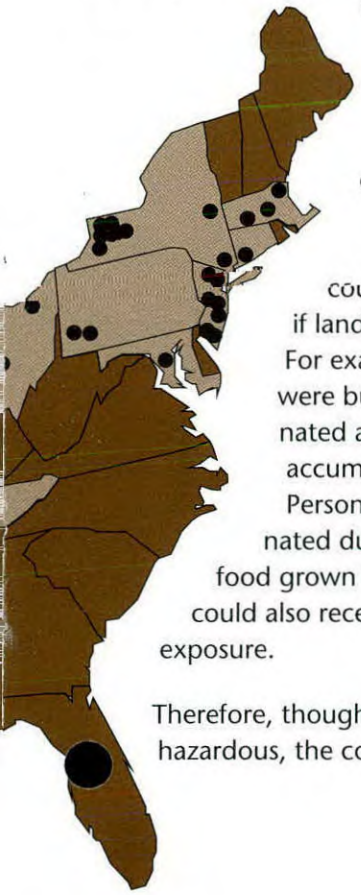
Cleanup work (remedial action) has been under way since 1979, and 14 sites have been completely remediated.





WHY IS FUSRAP IMPORTANT?

For the most part, the radioactively contaminated materials at FUSRAP sites do not pose a threat to public health or the environment. In fact, under present conditions at most FUSRAP sites, concentrations of radioactivity are so low that the greatest annual exposure to a member of the public is about 1 or 2 millirems per year. This is less than 1 percent of the exposure we receive from other sources of radiation in our daily lives.



However, there are circumstances under which unacceptable radiation exposures could occur—particularly if land use were to change. For example, if a residence were built on a contaminated area, radon gas could accumulate in the house. Persons breathing contaminated dust particles or eating food grown in contaminated soil could also receive unacceptable exposure.

Therefore, though not immediately hazardous, the contaminated FUSRAP sites must be cleaned up. Highest priority is given to actions that reduce radiation exposure to the public. Cleaning up these areas not only eliminates potential health hazards, but often also allows previously unusable or restricted property to be returned to uses that benefit the community. When a site has been cleaned to DOE standards, people can live on the property, drink water from onsite wells, grow crops or livestock for food, and still not receive radiation exposures that exceed the health guidelines established by the International Commission on Radiological Protection.

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On a pleasant, sprawling piece of land in Rochelle Park, New Jersey, several dozen retirees make their home. However, not too many years ago, this property was contaminated with thorium, and the land was not useable.

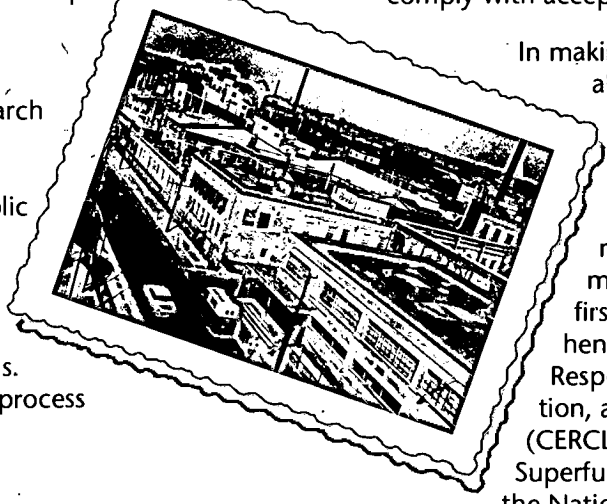
In 1983, Congress directed DOE to clean up the contamination resulting from commercial operations at the Maywood Chemical Works, which processed thorium ores from 1916 to the 1950s. Wastes from the operations were pumped to the nearby area, and over the years, the land became overgrown, and the wastes were largely forgotten. Private developers later purchased the property only to find they could not develop it after the thorium contamination was discovered in the late 1970s.

As part of its work at the Maywood site, FUSRAP cleaned up the property (and the backyards of several neighboring homes), allowing construction of the nursing home to begin.

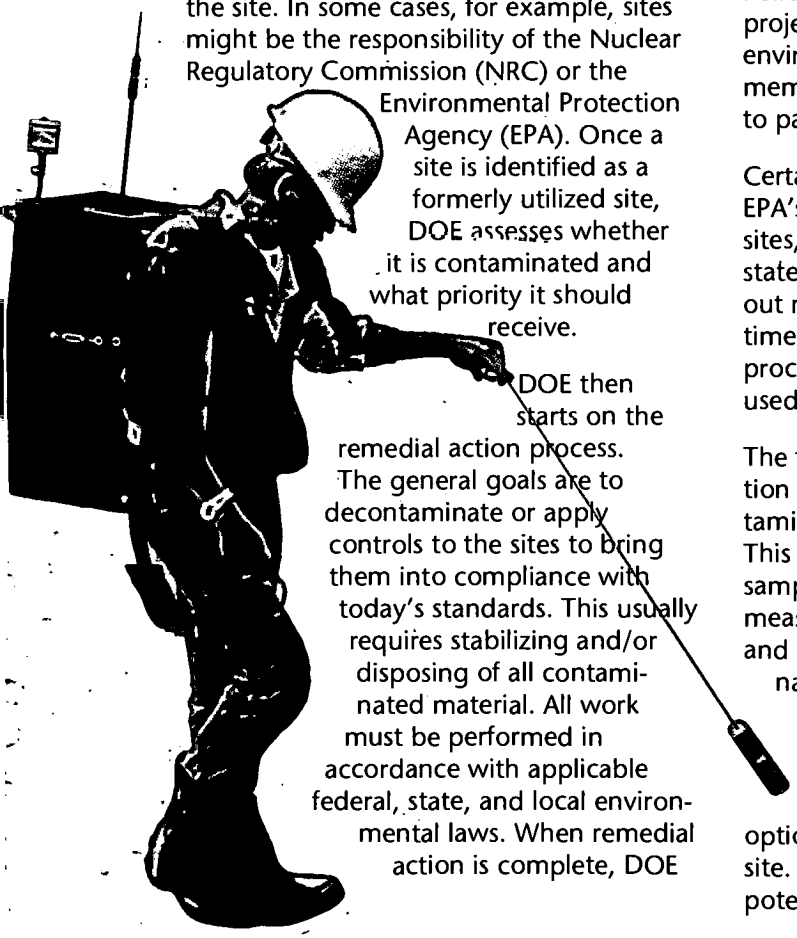
HOW

Although each site is different, there is a general sequence of events through which FUSRAP operates to clean up contaminated sites.

The first step, already mentioned, is to research historical records and review information submitted by the public or industry to identify sites used in the Manhattan Project and Atomic Energy Commission programs. This historical review process has almost been completed.



DOE must determine if it is responsible for the site. In some cases, for example, sites might be the responsibility of the Nuclear Regulatory Commission (NRC) or the Environmental Protection Agency (EPA). Once a site is identified as a formerly utilized site, DOE assesses whether it is contaminated and what priority it should receive.



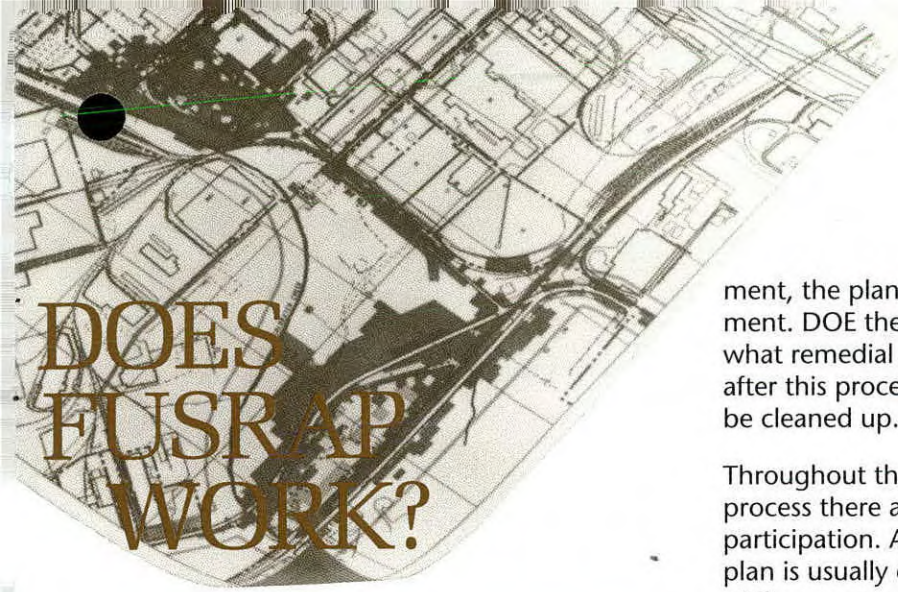
DOE then starts on the remedial action process. The general goals are to decontaminate or apply controls to the sites to bring them into compliance with today's standards. This usually requires stabilizing and/or disposing of all contaminated material. All work must be performed in accordance with applicable federal, state, and local environmental laws. When remedial action is complete, DOE obtains independent certification that the sites comply with accepted guidelines.

In making decisions about remedial action at FUSRAP sites, DOE's processes comply with two major environmental laws. The first is the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund. The second is the National Environmental Policy Act, or NEPA. These laws ensure that projects like FUSRAP are conducted in an environmentally sound manner and that members of the public have opportunities to participate.

Certain FUSRAP sites have been placed on EPA's National Priorities List (NPL). For those sites, DOE and EPA consult with affected states and enter into an agreement to spell out roles and responsibilities and establish timetables. The environmental cleanup process for FUSRAP is the same process used by EPA for all sites on the NPL.

The first part of the process is an investigation to obtain a clear picture of the contamination problems that exist at a site. This usually involves taking surface soil samples and/or drilling sampling holes to measure levels of contamination at a site and determine exactly where the contamination is located.

After data are collected and analyzed, options for cleaning up the site are evaluated. This evaluation of options leads to a plan for cleaning up the site. If the planned cleanup option has the potential to affect the public or the environ-



DOES FUSRAP WORK?

In 1942, the University of Chicago was involved in the Manhattan Project. Needing more room, researchers used the nearby National Guard Armory for storage and processing of uranium metals. Later, the building reverted to the Illinois National Guard, but the site remained contaminated with wastes resulting from the uranium processing.

When remedial action began in 1988, the FUSRAP team cleaned up the armory, filling 32 drums with radioactive sludge. This waste was shipped to DOE's Hanford Reservation for disposal. However, another 16 drums of material contained both radioactive waste and volatile organic compounds (VOCs), which are highly flammable materials. Regulations required that as long as the drums were onsite, the property could not be released for unrestricted use. However, there were no federal or commercial disposal facilities licensed to receive such wastes.

FUSRAP solved the problem by "processing" the wastes at the armory. The project team developed an idea for heat-treating the waste to boil off the volatile chemicals. After pilot tests, the technique was implemented at the armory, and the treatment was completed in under 6 weeks. The resultant radioactive waste, minus VOCs, was disposed at the Hanford Reservation, and the site is now "clean" for use without radiological restrictions.

ment, the plan is issued for public comment. DOE then reaches a decision as to what remedial action will be taken. Only after this process is complete can the site be cleaned up.

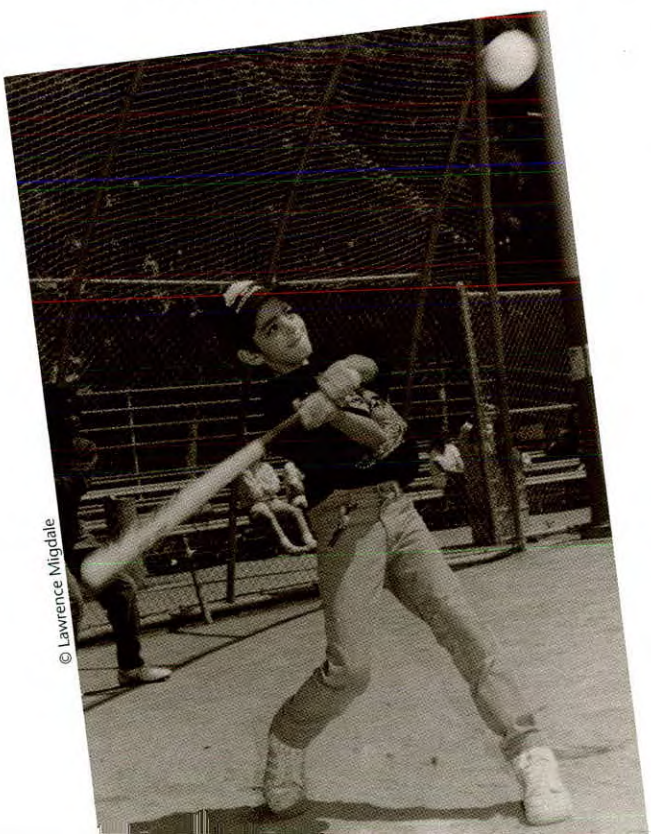
Throughout the entire remedial action process there are opportunities for public participation. A community relations plan is usually developed at the beginning of the process, and the public is asked to provide information about the site, identify options, and comment on DOE's evaluation of the options. State and local governments and property owners also are key participants in this process. State governments help suggest appropriate and acceptable disposal sites that DOE should consider for the wastes and ensure compliance with applicable state regulations. Local governments help inform the public about remedial activities.

Program guidance for FUSRAP is provided by DOE Headquarters, and day-to-day FUSRAP activities are managed by the DOE operations office in Oak Ridge, Tennessee. A project management contractor engineers and manages the field activities and construction necessary for remedial action. An environmental studies contractor is responsible for analysis of the environmental issues and options for cleanup. Other contractors independently verify that each remedial action has, in fact, cleaned up the site or property.

WHAT HAS FUSRAP DONE SO FAR?

Since it began in 1974, FUSRAP has made significant progress. Of the 44 sites identified as requiring remedial action, 14 have been completely cleaned up and partial remedial action has taken place at 16 others. Information about the nature and extent of contamination at the other 14 sites is being gathered as part of the environmental review process that will lead to remedial action. (This status is current as of early 1994.)

In addition, more that 173 other properties — residences, businesses, or public lands also contaminated over the years — have been cleaned up. Houses in Maywood, New Jersey; Colonie, New York; and elsewhere are now free of contamination.



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A commercial property in Rochelle Park, New Jersey, that couldn't be developed because of contamination is now the site of a nursing home that provides jobs and tax revenues to the community.

And a recreation field in Wayne, New Jersey, that sat idle for years is now back in use.

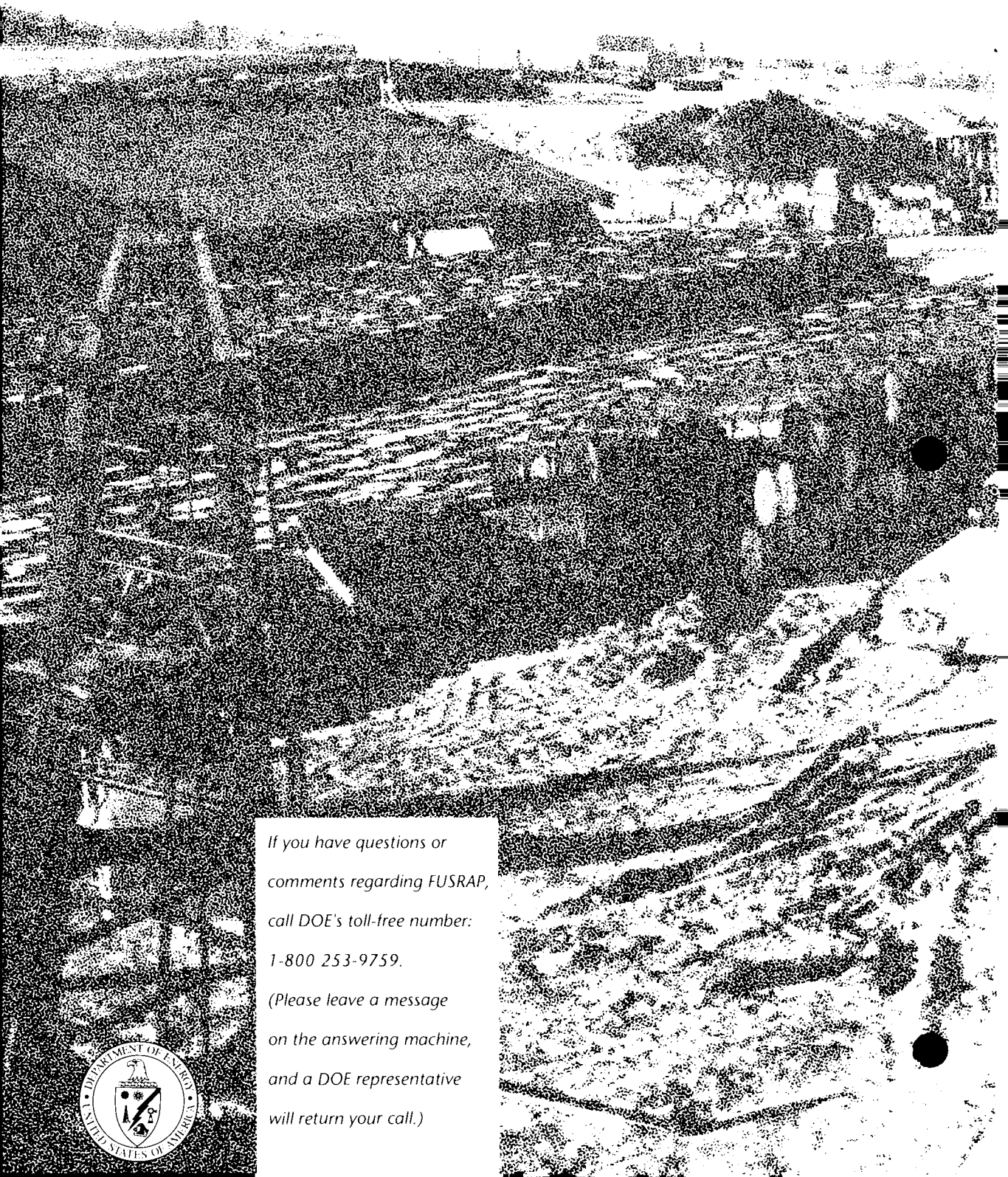
At the Niagara Falls Storage Site in Lewiston, New York, contamination has been consolidated from a 191-acre DOE-owned site and about 25 adjacent private properties. The wastes are now contained in a disposal cell designed to preclude any exposure to humans and prevent migration into groundwater.

More than 150,000 cubic yards of contaminated materials have been removed from residential and commerial properties and stored at DOE-controlled and monitored interim storage sites. These interim storage sites are in Maywood, Middlesex, and Wayne, New Jersey; Colonie, New York; and Hazelwood, Missouri.

WHAT REMAINS TO BE DONE?

While FUSRAP has been successful in cleaning many sites and vicinity properties, much work remains. Many residential and commercial properties still require cleanup. Also the interim storage piles that have received the wastes removed from properties already cleaned are a source of local concern. Permanent disposal sites and methodologies are needed to permanently isolate the contamination from the environment.

Almost 2 million cubic yards of contaminated material eventually will need to be addressed. The majority of this material is in the states of Missouri, New Jersey, and New York. Selecting and developing appropriate permanent disposal sites and methodologies is the biggest challenge facing DOE, the states, and the people living in the affected communities.



If you have questions or comments regarding FUSRAP, call DOE's toll-free number: 1-800 253-9759. (Please leave a message on the answering machine, and a DOE representative will return your call.)