Publicly Funded Cleanups
Site Status Report

SRP

REPORT

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NEW JERSEY DEPARTMENT
OF ENVIRONMENTAL PROTECTION

New Jersey Department of Environmental Protection
Mission Statement

To assist the residents of New Jersey in preserving, sustaining, protecting and enhancing the environment to ensure the integration of high environmental quality, public health and economic vitality. We will accomplish our mission in partnership with the general public, business, the environmental community and all levels of government by:

- Developing and integrating an environmental master plan to assist the Department and our partners in decision-making through increased availability of resource data on the Geographic Information System.
- Defining and publishing reasonable, clear and predictable scientifically-based standards.
- Achieving the Department's goals in a manner that encourages compliance and innovation.
- Employing a decision-making process that is open, comprehensive, timely, predictable and efficient.
- Providing residents and visitors with affordable access to safe and clean open space, historic and natural resources.
- Ensuring that pollution is prevented in the most efficient and practical way possible.
- Ensuring that the best technology is planned and applied to achieve long-term goals.
- Ensuring that non-treatable wastes are isolated, managed and controlled.
- Enhancing environmental awareness and stewardship through education and communication.
- Fostering a work environment that attracts and retains dedicated and talented people.
- Committing to an ongoing evaluation of the Department's progress toward achieving our mission.

State of New Jersey
Christine Todd Whitman, Governor

New Jersey Department of Environmental Protection
Robert C. Shinn, Jr., Commissioner
Mark Smith, Deputy Commissioner

Site Remediation Program
Richard J. Gimello, Assistant Commissioner

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Overview

The *Publicly Funded Cleanups Site Status Report 1998* is a publication of the Site Remediation Program of the New Jersey Department of Environmental Protection (NJDEP). The report summarizes the work accomplished by the Program's Division of Publicly Funded Site Remediation to investigate and clean up contaminated sites across the state for which there are no viable responsible parties. The types of sites covered in this report include inactive landfills that accepted hazardous wastes, gasoline stations with leaking underground storage tanks, illegal hazardous waste dumps, industrial facilities and many others. The Division of Responsible Party Site Remediation, the other division in NJDEP's Site Remediation Program, supervises the investigation and cleanup of similar sites by responsible parties using private funds. The combined efforts of both divisions result in safer neighborhoods and work places and protection of our valuable drinking water supplies.

The *Publicly Funded Cleanups Site Status Report 1998* is composed of four major sections. The Introduction discusses general topics pertaining to the publicly funded cleanup program, including a summary of the progress the Division of Publicly Funded Site Remediation has made in investigating and remediating sites over State Fiscal Year 1998 and since the Site Remediation Program began. The Introduction also details significant achievements in addressing particular sites, NJDEP's efforts to streamline the remedial process, important information on the funding mechanisms that pay for the investigations and cleanups, and other topics of interest. The Site Highlights portion of the Introduction covers cleanup work recently conducted at half a dozen sites, with photographs and diagrams added to enhance the reader's understanding of the remedial process. The Site Description section provides summaries for 188 publicly funded sites as of June 30, 1998, including 54 sites in the federal Superfund program that are being jointly addressed by the United States Environmental Protection Agency (USEPA) and NJDEP. The Site Listings section provides lists of other contaminated sites that were also addressed using public funds but for various reasons do not warrant a full site description. Finally, the Appendixes provide a summary of all the remedial work conducted by the Division to date in table format.

NJDEP has issued the *Publicly Funded Cleanups Site Status Report* for every State Fiscal Year since 1995. In 1997, the New Jersey Legislature mandated issuance of the *Publicly Funded Cleanups Site Status Report* on an annual basis as part of the funding initiative activated through appropriations of the Corporate Business Tax for remedial activities. A Site Remediation Program Financial Plan Report, which details funding projections for State Fiscal Year 2000, is also required and available under separate cover.

DPFSR Mission Statement

The mission of the Division of Publicly Funded Site Remediation (DPFSR) is to plan, manage and oversee publicly funded and publicly administered contaminated site investigations and cleanups pursuant to and in conformance with all applicable state and federal laws, rules and regulations. DPFSR offers support for all remedial activities undertaken by NJDEP by ensuring that technically, geologically and scientifically justified cleanup objectives are met.

In addition, DPFSR assists the Department of Treasury in procurement activities and provides assistance to the public through community outreach and information systems, and provides assistance to the regulated community and the public on health and safety issues.

Cleanup milestones reached at publicly funded Superfund sites

The clearest measure of the success of a Superfund cleanup is the removal, or deletion, of the site from the National Priorities List (NPL). This step indicates that the contamination at that site has been thoroughly investigated and remediated in accordance with strict federal and state standards. Through the joint efforts of NJDEP's Site Remediation Program, USEPA and in some cases the potentially responsible parties, sixteen Superfund sites in the state of New Jersey have been fully deleted from the NPL, and one additional site has been partially deleted as of early 1999. However, this statistic alone does not provide an accurate picture of the progress that has been made in addressing Superfund sites in New Jersey. At many sites, the major environmental hazards are eliminated or controlled and human health protected relatively early in the cleanup process, but a long-term remedial action, often spanning a period of years, is required to complete the remediation of residual contamination. A typical example is the extraction and treatment of ground water to restore a contaminated aquifer, a complex process that can often take more than a decade to accomplish. In addition, years of post-cleanup monitoring or operation and maintenance activities may be required to ensure the effectiveness of a remedial action. Figure 1 provides a summary of the Superfund sites being addressed with public funds that are undergoing a long-term remedial action or post-cleanup environmental monitoring as the final phase of remedial action.

Clearly, the initiation of the final remedial action is a significant milestone event in the Superfund process and a key indicator of cleanup progress. In recent months, NJDEP's Division of Publicly Funded Site Remediation and USEPA brought five publicly funded Superfund sites in the state to this stage, as detailed below. At these sites a Record of Decision was signed that brought final cleanup of the site close to realization, a soil remedial action was begun or a long-term ground water remedial action was initiated. These events significantly advanced the sites toward completion, even though in most cases deletion of the sites from the NPL is not expected for some time. For additional details about these cases, please see the site description section of this report.

Burnt Fly Bog, Marlboro Township, Monmouth County

In September 1998, NJDEP signed a third Record of Decision for this site, where waste oil containing polychlorinated biphenyls (PCBs) was

Final Phase O&M Projects at Publicy Funded Superfund Sites

Project Name	Action	O&M Start
Bog Creek Farm* LTRA	Ground Water Pump & Treat	1994
Combe Fill North Landfill	Monitoring, Cap Maintenance	1991
Combe Fill South Landfill	Ground Water Treatment, Cap & POET Maintenance	1998
Florence Land Recontouring Landfill	Leachate, Methane Gas Collection, Cap Maintenance	1995
Higgins Farm* LTRA	Ground Water Pump & Treat	1997
Lang Property* LTRA	Ground Water Pump & Treat	1997
Lipari Landfill*	On-Site Leachate/Ground Water Pump & Treat	1992
Williams Property LTRA	Ground Water Pump & Treat	1995

As of February 1999. Does not include three Superfund sites where the Responsible Parties assumed Operation and Maintenance (O&M) work after construction activities were completed by the Division of Publicly Funded Site Remediation.
** USEPA manages O&M work at these sites*
LTRA - Long Term Remedial Action

Figure 1

The sedimentation basin at the Burnt Fly Bog Superfund site. The basin is designed to prevent contamination from migrating off site via Burnt Fly Brook. Contaminated sediments are trapped by the basin as they travel downstream from other affected areas at the site.

Excavation activities begin at the Pepe Field Superfund site.

The ground water treatment plant for the Garden State Cleaners and South Jersey Clothing Company Superfund sites.

once stored in several large unlined lagoons. The Record of Decision calls for the excavation and off-site disposal of approximately 33,000 cubic yards of PCB-contaminated soil from two wetlands areas, restoration of the wetlands, and long-term environmental monitoring at another wetlands area that cannot be excavated due to its sensitive ecosystem. The soil excavation project, which is scheduled to occur in 2000, will be the third and final remedial action for this site. The two previous actions resulted in the removal and off-site disposal of over 90,000 tons of contaminated soil and hazardous sludge and hundreds of thousands of gallons of lagoon liquids from other parts of the property. In addition, NJDEP has installed a 10-acre sedimentation basin on a stream that flows through the property to intercept contaminated sediments and prevent these materials from migrating off site. Contamination of the ground water is not an issue because the site is located on a discharge area of the Englishtown aquifer, where ground water flows to the surface. By implementing the measures outlined in the final Record of Decision, NJDEP will ensure that human health is protected and all environmental concerns at the site have been fully addressed.

Global Landfill, Old Bridge Township, Middlesex County

In September 1997, after completing an extensive study that revealed only minimal levels of contamination at this municipal landfill, NJDEP signed a Record of Decision that required long-term monitoring of the ground water and the nearby wetland surface water and sediments. This "No Action with Monitoring" decision has enabled the potentially responsible parties to proceed with a plan to install a landfill cap with methane gas and leachate collection systems pursuant to a 1991 Record of Decision for the site. The potentially responsible parties began the first stage of construction in 1997 by placing 25,000 cubic yards of clean soil on the top of the landfill to provide the base for the cap and help compact the waste fill. Data obtained on the compaction of the waste fill is being used to complete the Remedial Design for the landfill cap. NJDEP expects the potentially responsible parties to complete the Remedial Design and begin the final stage of the cap construction in 2000. The environmental monitoring required in the 1997 Record of Decision will be conducted at the landfill for up to 30 years after the cap is completed to ensure the effectiveness of the selected remedies.

Garden State Cleaners and South Jersey Clothing Company, Buena Borough, Atlantic County

In December 1998, USEPA completed construction of a ground water remediation system to address the commingled plumes of contaminated ground water from these neighboring sites. The remediation system is capable of extracting and treating 550 gallons of ground water a minute and represents the largest publicly funded ground water treatment system in New Jersey. In addition to cleaning the ground water, the system is imposing hydraulic control over the plumes and thereby preventing the ground water contamination from spreading. Also in late 1998, USEPA completed installation of a soil vapor extraction system at the South Jersey Clothing Company Superfund site. This system is designed to volatilize and extract solvents present in the subsurface soil that are acting as a source of contamination to the ground water. Similar soil contamination at the Garden State Cleaners site has already been fully remediated. Operation and maintenance of the ground water remediation system and the soil vapor extraction system will mark the final phase of the remedial actions at these two sites.

Pepe Field, BoontonTown Morris County

In mid-1998, USEPA completed a Remedial Design to excavate organic wastes at this athletic field, which was built on top of an old industrial landfill. The anaerobic decay of the wastes was generating methane and hydrogen sulfide gases,

creating unpleasant odors and potentially hazardous conditions. The design for the cleanup was complicated by the fact that the wastes are extremely moist and must be stabilized before they can be handled. In addition, USEPA needed to establish the proper safety precautions for working under conditions where hazardous gases are present. USEPA demolished the tennis court and other site structures in the summer of 1998, and began stabilizing and excavating the estimated 25,000 cubic yards of waste several months later. USEPA will fill in the excavated area with clean soil and restore the site for use as an athletic field according to the Town's specifications. This cleanup and restoration project is expected to be completed in 2000.

attention that day when tens of thousands of drums of highly flammable and toxic chemical wastes that were being improperly stored on the premises burned out of control for ten hours. The disaster was compounded when toxic chemicals carried by the runoff from the fire fighting efforts severely contaminated the adjacent Elizabeth River. The emergency response action that NJDEP conducted in the six months immediately following the fire remains the largest ever implemented in the state of New Jersey. Using money obtained from the New Jersey Spill Fund, NJDEP stabilized the site to prevent additional contamination of the river, decontaminated fire fighting equipment and buildings, excavated buried wastes and disposed of approximately 49,000 drums and

Cost recovery milestone - Chemical Control Corporation, Elizabeth City, Union County

In another milestone event related to publicly funded Superfund cleanups, on December 7,1998 NJDEP received a record $17.4 million settlement from more than 200 potentially responsible parties to reimburse the state for money spent to remediate the Chemical Control Corporation site after a massive fire that occurred on April 21, 1980. The site was the subject of nationwide

A Superfund success story: Above, the Chemical Control Corporation site the day after the 1980 fire, and as it appears today (below). NJDEP was recently reimbursed $17.4 million by the potentially responsible parties for remedial work conducted at the site.

250,000 gallons of highly toxic liquid chemicals. Within 18 months of the fire NJDEP had removed much of the contaminated soil from the property and installed an on-site ground water remediation system to treat the shallow aquifer, which was highly contaminated with volatile organic compounds, semi-volatile organic compounds and metals. USEPA assumed responsibility for the site in late 1981 after it was proposed for inclusion on the NPL, and a group of potentially responsible parties agreed to finish the cleanup under a Consent Decree with USEPA in 1990. The final cleanup, which entailed solidifying and capping the remaining contaminated soil, was completed in 1993 and USEPA is currently monitoring the site to evaluate the effectiveness of the remedial action. The $17.4 million reimbursement is the largest single cost recovery settlement in the history of the New Jersey Spill Fund. Combined with $4.1 million previously received from the responsible parties, the total amount recovered represents 83% of the $26 million NJDEP spent to remedy the site in the aftermath of the fire.

Business tax allocation continues support of publicly funded actions

More than $51 million in Corporate Business Tax revenue has been provided to the publicly funded cleanup program for remedial investigations and cleanups since monies were first dedicated in 1997. In State Fiscal Year 1998, a total of $33.2 million was allocated for project expenses; this included a supplemental appropriation for the second half of State Fiscal Year 1997. In State Fiscal Year 1999, an additional $18.1 million in cleanup funds was made available to NJDEP through the Corporate Business Tax.

Expenditures of these funds in State Fiscal Year 1998 included $28.7 million in project-specific remedial costs, including reimbursing some accounts for expenses incurred the previous fiscal year. In the first half of State Fiscal Year 1999, $7.2 million in project expenses had been paid with Corporate Business Tax monies, with millions more in the process of approval prior to disbursement.

With the stable source of revenue allocated each year from the Corporate Business Tax, New Jersey provides its 10 percent match to obtain federal Superfund dollars and to motivate responsible parties to perform cleanups. The stability of the Site Remediation Program's publicly funded effort is vital to New Jersey remaining the top recipient of federal cleanup monies in the nation and to NJDEP maintaining an effective enforcement incentive for compelling responsible parties to remediate properties.

Paying annual cleanup expenses on an "as you go" basis with monies generated from the Corporate Business Tax results in savings for the state as compared to the long-term financing of project costs from bond funds. Bond funds are authorized at the beginning of a remedial project to ensure that enough monies are available to pay contractor invoices when they are

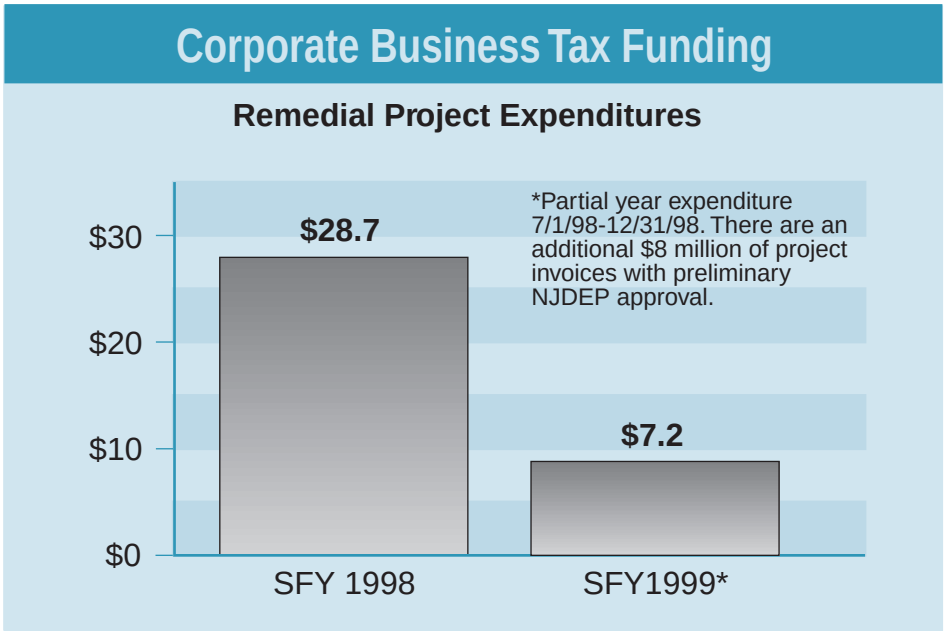

Figure 2

submitted. However, the authorization of bond funds for a particular site does not require the immediate selling of bonds. The state had been selling bonds to generate cash for payment of invoices that are submitted throughout each state fiscal year for work at numerous sites. Financing the $28.7 million the Site Remediation Program expended in Corporate Business Tax monies in State Fiscal Year 1998 would cost the state an additional $16.8 million in interest during a 20-year period at prevailing bond rates. Clearly, the Corporate Business Tax is a stable source of funding and has reduced the overall need to sell bonds.

Pressure continues to force private cleanups

One of the Site Remediation Program's most powerful tools to compel private parties to perform cleanups is the strong publicly funded cleanup program. With the enactment of the Spill Compensation and Control Act in 1976, the New Jersey State Legislature dictated that the cleanup of contamination was of primary importance, and compelling responsible parties to perform the cleanup was preferred over using public funds. To do this the Legislature established several funding sources to provide public funds to ensure that the contamination would be remediated first, and any disagreements over who should pay could be resolved after the cleanup. However, in order to provide incentive for responsible parties to assume the cleanup before public funds are used, the Legislature included a "treble damage" penalty for responsible parties that decline to do the cleanup when directed by the state. If public funds are used for a cleanup, the law provides for the state to recover up to three times its cost from the responsible parties. The potential for treble damages is a strong incentive for responsible parties to do the work. The key to this strategy, though, is a strong, well-funded public cleanup program. The treble damages penalty works only if the state has the money to back up its directive. This tool in the "Polluter Pays" strategy continues to ensure that the majority of the money to clean up the state's contaminated sites comes from the responsible parties.

This year, as in past years, the Site Remediation Program had considerable success in persuading private parties to assume remedial actions. In State Fiscal Year 1998, private parties have agreed to implement cleanups at five sites with an estimated total cleanup cost of over $10 million. A summary of these five sites is provided in Figure 3, and a list of all of the sites to date that have started as publicly funded and finished with private funds is available on page 281 of Section III. The most significant of the cases transferred to private parties during State Fiscal Year 1998 was the Peabody Clean Industries site in Paulsboro, Gloucester County. The site was a former oil refinery and was used by a cleanup contractor as a storage facility. The site has considerable soil and ground water contamination due to past operations and will require extensive remedial action. The private parties will conduct this work under the supervision of the Site Remediation Program's Division of Responsible Party Site Remediation.

Sites Transferred from Publicly Funded to Responsible Party Division in SFY 98

Site Name	Municipality	County	Type
Alford Industries	MoorestownTownship	Burlington	Non-Superfund
Branchburg Motor Fuels	Branchburg Township	Somerset	Non Superfund
Ewan Property	Shamong Township	Burlington	Superfund
Hopkins Farm	Plumsted Township	Ocean	Superfund
Peabody Clean Industries	Paulsboro Borough	Gloucester	Non-Superfund

Figure 3

Superfund financial update

During Federal Fiscal Year 1998, as in previous years, New Jersey ranked first in the country for federal funds allocated for Remedial Actions at publicly funded Superfund sites. Almost $79 million was dedicated for both new and ongoing cleanups at 11 Superfund sites across the state. This sum represents roughly 20% of $400 million awarded for publicly funded Superfund cleanups nationwide. USEPA Region II and NJDEP were able to secure this level of funding for two reasons. First, a large number of Superfund sites in New Jersey had completed the remedial investigation and remedial design stages and were ready for cleanup. Second, the state had money available to provide the 10% matching funds required under Superfund regulations. A summary of the Superfund sites that will receive a portion of the $79 million to perform remedial actions is provided in Figure 4.

In addition to the $79 million allocated for Remedial Actions, USEPA committed $18.5 million for Remedial Investigation and Remedial Design work at other Superfund sites in New Jersey during Federal Fiscal Year 1998, with no state matching funds required. This funding brings to more than $1.5 billion the total amount of Superfund monies allocated to New Jersey since 1988. It is important to note that of this amount, $1.2 billion, or 80% of all the federal funds allocated, has been dedicated to conduct Remedial Actions, the phase of the remedial process that directly protects human health and the environment.

A full listing of all Superfund sites in New Jersey is presented on page 307 in Section IV.

Superfund Cleanup Funding--Federal Fiscal Year 1998

Site	Cleanup Work	Money
Asbestos Dump (Passaic and Harding townships, Morris County)	Cleanup of contaminated soil and relocation of a family to a new residence.	$2,700,000
Bog Creek Farm (Howell Township, Monmouth County)	Continued operation of recently installed ground water pump and treat system.	$1,000,000
Bound Brook Industrial Park (Bound Brook Borough, Somerset County)	Excavation and disposal of contaminated soil.	$357,000
Cosden Chemical Coatings (Beverly City, Burlington County)	Excavation and off-site disposal of contaminated soil.	$2,100,000
Glen Ridge Radium Sites (Glen Ridge Borough, Essex County)	Removal of radium-contaminated soil from residential properties and from beneath streets.	$17,000,000
Lang Property (Pemberton Township, Burlington County)	Continued operation of a ground water pump and treat system.	$1,300,000
Montclair/W. Orange Radium Sites (Montclair Township, Essex County)	Removal of contaminated soil from beneath streets.	$10,000,000
Nascolite Corporation (Millville City, Essex County)	Solidification/stabilization of contaminated soil and restoration of wetlands	$7,000,000
Pepe Field (Boonton Town, Morris County)	Excavation and disposal of soil.	$10,000,000
Quality Tool and Die Co., Inc. (Hoboken City, Hudson County)	Purchase of mercury-contaminated building and relocation of residents.	$12,200,000
US Radium Sites (Orange City, Essex County	Cleanup of commercial and industrial properties.	$15,000,000

Figure 4

Origins of the Site Remediation Program

In the late 1970s and early 1980s, public support for a coordinated cleanup effort and pioneering state and federal laws enabled NJDEP to establish a progressive program to address contaminated sites. Beginning with the passage of the New Jersey Spill Compensation and Control Act in 1976, the state initiated the first program in the country for the cleanup of contaminated sites that posed danger to human health and the environment. This program became a national model. For the first time serious consideration was given to reversing decades of industrial, commercial and household waste mismanagement that resulted in discharges of hazardous substances into the environment.

Following New Jersey's lead, the federal government created a program to provide financial aid and technical guidance in cleaning up the nation's more serious contaminated sites. Enacted in 1980, the law is called the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), more commonly known as Superfund. This program was strengthened in 1986 by the Superfund Amendments and Reauthorization Act (SARA).

As the universe of potentially contaminated sites in New Jersey continued to increase from an original inventory of about 1,200 sites, NJDEP expanded its cleanup efforts to meet the challenges posed by a variety of pollution problems. The passage of several key state laws facilitated these endeavors, including the Water Pollution Control Act, Environmental Cleanup Responsibility Act (later replaced by the Industrial Site Recovery Act) and Underground Storage Tank Act. The inventory of sites maintained by the Site Remediation Program, collectively known as the Comprehensive Site List, now includes 30,073 sites, of which more than half received No Further Action designations from NJDEP.

Cleanup progress - Remedial Action projects completed in 1998

In State Fiscal Year 1998, eight Superfund and non-Superfund Remedial Action projects were completed at a cost of nearly $9.3 million by NJDEP and USEPA. Work ranged from removing 700 drums of chemical wastes from a defunct drum reconditioning facility to installing a ground water remediation system capable of treating 108,000 gallons per day at a former illegal hazardous waste dump site. These actions are listed in Figure 6. Also, USEPA conducted $3.7 million in Emergency Removal Actions at 11 contaminated sites upon concurrence with NJDEP, as noted in Figure 7.

The Remedial Action and Emergency Removal Action work conducted by NJDEP and USEPA is the most visible indication of cleanup progress in a community. NJDEP uses public funds in emergency situations or when companies or individuals responsible for the contamination are unknown or unable or unwilling to take appropriate remedial actions at priority sites. NJDEP attempts to secure federal funds through USEPA to conduct remedial activities when no viable responsible party exists. This policy preserves state monies for other projects that do not meet USEPA's criteria. Public monies fund remedial activities that include:

- Responding to immediate environmental concerns that threaten public health through direct contact with, or inhalation or ingestion of, contamination;
- Conducting investigations at suspected or known contaminated sites;
- Performing cleanups, such as treatment, re-

NJDEP and USEPA Remedial Action Project Completions

Site Name	Municipality	County	Cost
Evor Phillips Leasing Company	Old Bridge Township	Middlesex	$639,000
Flemington Water Dept. Well 7	Flemington Borough	Hunterdon	$200,000
Higgins Farm*	Franklin Township	Somerset	$7,000,000
Kauffman & Minteer	Springfield Township	Burlington	$150,000
Liberty State Park/McAllister Petroleum	Jersey City	Hudson	$40,000
Martin Aaron Inc.	Camden City	Camden	$350,000
Route 202 Ground Water Contamination	Branchburg Township	Somerset	$662,000
Urban Casting Company	Gloucester Township	Camden	$275,000

**USEPA lead project*

Figure 6

USEPA Removal Action Completions

Site Name	Municipality	County	Cost
Central Steel Drum Co.	Newark City	Essex	$275,000
Cornell Dubilier Electronics Inc.	South Plainfield Borough	Middlesex	$332,000
General Color Co.	Newark City	Essex	$250,000
Imperial Oil Co./Champion Chemicals	Marlboro Township	Monmouth	$100,000
Kauffman & Minteer, Inc.	Springfield Township	Burlington	$1,570,000
Magic Marker Inc.	Trenton City	Mercer	$280,000
Malone Chemical Inc.	Linden City	Essex	$370,000
Non-Ferrous Recycling Co.	South Plainfield Borough	Middlesex	$86,000
Pittsburgh Metals & Graphics	Jersey City	Hudson	$10,000
Pyrolac Corporation	Hawthorne Borough	Passiac	$426,000
Route 561 Dump	Gibbsboro Borough	Camden	$23,000

Figure 7

moval or containment of contaminated soil and ground water and providing alternate drinking water supplies; and,

■ Providing long-term maintenance on treatment systems as well as monitoring site conditions to ensure continued protection of human health and the environment.

These types of actions require NJDEP to take various steps to move site cleanups toward completion. The overall remedial process is described on pages xviii and xix.

Long-term operation and maintenance actions ensure protection

The types of actions required to ensure past cleanup actions remain protective of human health and the environment range from cutting grass on landfill caps to operating ground water treatment plants. NJDEP conducted Operations and Maintenance (O&M) actions at 37 sites at a cost of nearly $6.2 million in State Fiscal Year 1998. In 1989, the Site Remediation Program developed a unit to manage the growing demand for operations, maintenance and monitoring activities at contaminated sites that required long-term remedial involvement after other remedial activities were completed.

Operations of systems involving gas collection and venting, leachate collection and processing, and ground water extraction and treatment can occur at landfills and other sites. Some operating systems are automated and require a periodic check by a system technician to ensure proper operations

Operation, Monitoring & Maintenance Projects Underway

Project Name	Action	Type
243 North Texas Avenue	Ground Water Pump & Treat	Non-Superfund
5 Devon Avenue	Ground Water Pump & Treat	Non-Superfund
7 Hawk Lane	Ground Water Monitoring	Non-Superfund
A-Z Automotive	Ground Water Pump & Treat, POET Maintenance	Non-Superfund
Albert Steel Drum	Ground Water Monitoring	Non-Superfund
Amoco Service Station Milltown	Ground Water Pump & Treat	Non-Superfund
Amoco Service Union City	Ground Water Pump & Treat	Non-Superfund
Big Hill Landfill	Canterbury Pond Maintenance, Methane Gas Collection System	Non-Superfund
Bog Creek Farm* LTRA	Ground Water Pump & Treat	Superfund
Burnt Fly Bog	Site & Sediment Pond Maintenance	Superfund
Choma's Amoco/44 Grand Street	Vapor Recovery	Non-Superfund
Citgo Service Station North Brunswick	Ground Water Monitoring	Non-Superfund
Combe Fill North Landfill	Monitoring, Cap Maintenance	Superfund
Combe Fill South Landfill	POET Maintenance	Superfund
Denzer & Schafer X-Ray	Site Maintenance	Superfund
Edgewood Village	Ground Water Pump & Treat	Non-Superfund
Exxon Service Station Lakehurst	Ground Water Pump & Treat	Non-Superfund
Florence Land Recontouring Inc Landfill	Leachate, Methane Gas Collection, Cap Maintenance	Superfund
Higgins Farm* LTRA	Ground Water Pump & Treat	Superfund
High Point Sanitary Landfill	Cap Maintenance	Non-Superfund
Holland Sales Service Inc	POET Maintenance	Non-Superfund
Hope Auto Care	Ground Water Pump & Treat	Non-Superfund
Hudson County Chromate (16 Sites)	Cap, Fence Maintenance	Non-Superfund
Imperial Oil Company Inc	Floating Oil Product Removal	Superfund
Jack's Auto	Free Product Recovery	Non-Superfund
Krysowaty Farm	Site Maintenance	Superfund
Lang Property * LTRA	Ground Water Pump & Treat	Superfund
Lipari Landfill*	On-Site Leachate/Ground Water Pump & Treat	Superfund
Neighborhood Garage	Soil Vapor Extraction/Ground Water Pump & Treat	Superfund
PJP Landfill	Cap Maintenance	Superfund
Research Organics Inorganics	Site Maintenance	Non-Superfund
Semonian Service	Vapor Extraction	Non-Superfund
South Jersey Clothing Company*	Ground Water Pump & Treat	Superfund
Syncon Resins	Ground Water Pump & Treat	Superfund
Texaco Service Oaklyn Borough	Ground Water Pump & Treat	Non-Superfund
Welsbach & General Gas/Ste-Lar Building	Site Maintenance	Superfund
Williams Property LTRA	Ground Water Pump & Treat	Superfund

**USEPA manages O&M work at these sites.*
LTRA - Long Term Remedial Action

Figure 8

and functioning within defined design parameters. Other operations require full time staffing.

Maintenance activities include replacing spent carbon in air and water adsorber systems, replacing bearings in pumps and painting process equipment to prevent corrosion. The scope of these actions extends from changing a filtration device on a ground water treatment system that processes 180,000 gallons of water a day to switching a relatively small filter on an individual Point-of-Entry Treatment unit at a private residence.

Monitoring site conditions provides data to determine the effectiveness of an operating remediation system. Monitoring actions also involve observing the environment around an active or passive remediation project. Often, monitor wells away from the primary area of contamination act as sentinel devices to detect if ground water contamination is spreading. If monitoring indicates that an operating collection and treatment

The Remedial Process

For the purpose of evaluating the progress of publicly funded cleanup activities at Superfund and non-Superfund sites, it is important to understand how sites move through the remedial process. A site is usually divided into subsites or operable units, allowing for variation in the speed or extent to which problem areas at a site are addressed. In this manner, contamination at subsites presenting the most immediate environmental concerns can be dealt with first, such as removal of surface wastes or containment of waste materials to prevent the threat of direct contact or off-site migration. The remaining subsites that move through the remedial process usually involve more complex studies and cleanup actions, such as treatment of contaminated soil or ground water.
The projects described below may occur at both the site or subsite level, depending on the complexity of the contamination at the location being addressed. A subsite's status depends on the type of work under way. If all work is completed, the No Further Action status described below applies.

A **Remedial Investigation and Feasibility Study (RI/FS)** is an examination conducted at Superfund sites to determine the extent of contamination and identify acceptable alternatives for cleanup. Substantial effort is expended in characterizing environmental problems at a site during the **RI**. Select criteria are then employed during the **FS** to analyze and evaluate in detail the effectiveness, implementability, timeliness, cost and community concerns associated with each alternative considered. At non-Superfund sites, a **Remedial Action Selection Report (RASR)** is performed in place of a **Feasibility Study**. All publicly funded actions and most privately funded actions at non-Superfund sites require a **RASR** prior to selecting and implementing a cleanup plan. Also, for all publicly funded sites, both Superfund and non-Superfund, NJDEP presents a preferred alternative for public comment that best meets the stipulated evaluation criteria.

A **Remedial Design (RD)** is the development of engineering plans and specifications to implement the remedy selected from the **FS** or **RASR**, such as sizing a ground water treatment plant or developing an accurate measurement of contaminated soil that must be removed for off-site disposal. Further data collection and analysis may be required to finalize design specifications.

A **Remedial Action (RA)** is the implementation of the selected remedy. An **RA** could include: removal of contaminated soil; capping contaminated soil or fill; treatment of contaminated soil, ground water or drinking water; fencing; and, other actions. This phase, often referred to as the

construction period, is the most visible indicator of cleanup progress. NJDEP soil cleanup criteria have been established for many contaminants to guide unrestricted, limited restricted and restricted remedial actions. This enables cleanup and reuse of some sites, such as a former industrial complex, at a lower cost. A **Deed Notice** (formerly called a Declaration of Environmental Restriction) is imposed for sites that only comply with the restricted soil criteria (a limited restricted remedial action) or when engineering controls at sites with soil contamination levels that exceed the restricted criteria adequately protect public health and the environment (a restricted remedial action). This notice ensures the disclosure of site conditions to future owners and the maintenance of required engineering controls. Certain exceptions for affected ground water also can be obtained depending upon its use. A **Classification Exception Area** is established at sites when ground water contaminant levels exceed state ground water quality criteria, but there is an expectation that over time such standards will be met.

Operation and Maintenance (O&M) usually occurs when long-term cleanup actions are ongoing, such as ground water extraction and treatment with appropriate monitoring. At sites where contamination is left to naturally attenuate over time, monitoring alone may be required. These treatment systems and/or monitoring efforts, lasting from one to 30 years, are necessary to ensure compliance with cleanup standards selected for the site. At sites where restricted cleanups are conducted, **O&M** may continue indefinitely.

A **No Further Action (NFA)** designation is given when all remedial activities that were necessary to address an environmental concern have been completed. An **NFA** designation also is given when it is determined that regulatory requirements have been satisfied and no additional remedial work is required at the subsite. A **conditional NFA** is obtained when all remedial work has been completed at a site, but a **Deed Notice** or **Classification Exception Area** designation for the location is required because some contamination above appropriate standards or criteria remains. Also, a **conditional NFA** is obtained when only a portion of an entire site has been addressed in an unrestricted, limited restricted or restricted manner.

system is not working as predicted, then an analysis to determine the cause of the problem and implementation of corrective measures are required. Also, process modifications can be made if the established cleanup standards are not being met.

NJDEP hires private contractors to perform most O&M activities, with Department staff providing oversight and technical review. The list of active O&M projects depicted in Figure 8 shows a diverse array of sites requiring work. As more sites move past the Remedial Action status and into O&M, more long-term actions will be required to keep treatment systems running properly and to continue periodic checks on overall site conditions.

Publicly funded site activity

The "Publicly Funded Cleanups Site Status Report" provides information on 395 sites being addressed by the Site Remediation Program -- 334 with public funds and 61 by private parties after public funds initially were expended. The publicly funded site universe is represented in Figure 9.

There are 188 individual descriptions of sites with active remedial measures under way and one additional "site" description that encompasses 55 separate sites affected by chromium contamination in Hudson County. Also, 51 Water Supply sites where NJDEP provided an alternate drinking water supply or treatment system and is, or will be, investigating the source of the contamination are described on page 269. In total, 294 active sites are being addressed with public funds.

Various remedial activities have been performed at these 294 active sites, including numerous successful cleanup actions. However, all work is not yet completed.

The remaining 101 sites included in this report are categorized as follows: six Pending sites where NJDEP is considering taking action with public funds; 34 No Further Action sites where NJDEP has completed all remedial action; and, 61 sites where remedial work was conducted with public funds or administered by NJDEP and/or USEPA before the responsible parties agreed to complete the remaining remedial activities and oversight was transferred to the Site Remediation Program's responsible party division.

The Site Highlights section of this report features examples of publicly funded cleanup work at a variety of contaminated sites typically encountered by NJDEP. This section provides photographs and diagrams of actual construction activities at six sites to help illustrate the remedial process. These examples show how NJDEP's and USEPA's publicly funded cleanups: 1) ensure that landfills that once accepted hazardous wastes are properly closed to protect human health and ground water resources; 2) remove contaminated soil and buried hazardous materials that are direct contact hazards and potential sources of ground water contamination; and 3) ensure that contaminated sites are safe for nearby residents and the surrounding environment is protected.

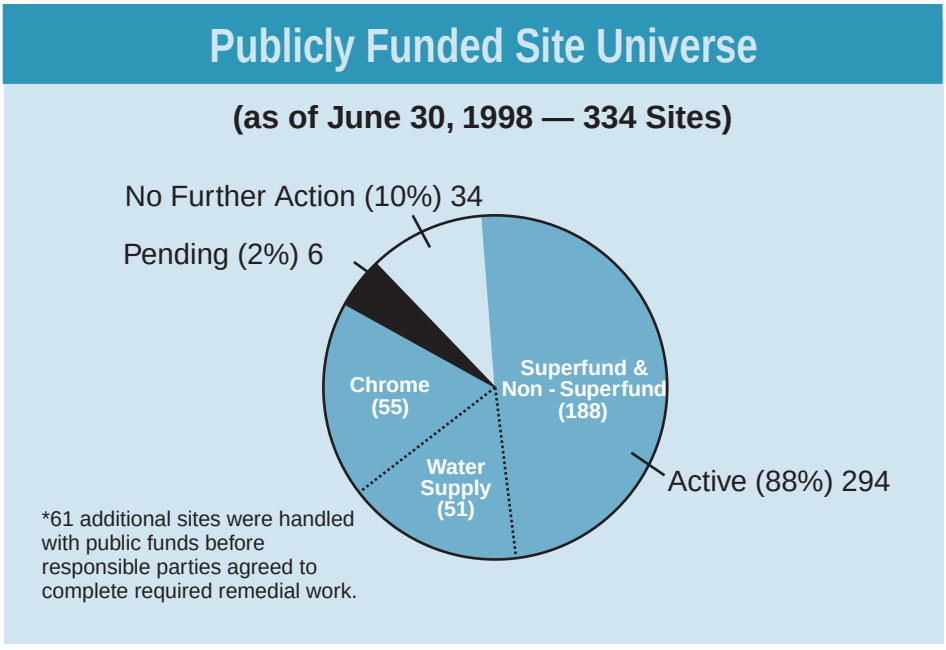

Figure 9

Cumulative site cleanup progress

Clearly, since the late 1970s, NJDEP has made significant progress in cleaning up sites with public funds at both Superfund and non-Superfund sites. More than half of the environmental problems identified at the 395 Superfund and non-Superfund sites that required public cleanup monies have been completely addressed or are being worked on through long-term operation, monitoring and maintenance to ensure the integrity of past remedial work.

Early on in the remedial process, NJDEP conducts preliminary assessments and site investigations to help determine if a site is contaminated and what remedial activities should be conducted to achieve a successful cleanup. Also, private parties and local officials often discover contaminated sites that are eventually referred to NJDEP for remedial activities with public funds. After a site has been confirmed to be contaminated and specific areas of concern have been identified, the overall property is divided into an appropriate number of subsites to address the various environmental problems. Most of these subsites routinely require a series of remedial projects to address the specific contamination associated with these subsites. These projects normally progress in the following order: 1) Remedial Investigation and Feasibility Study (RI/FS) at Superfund sites or Remedial Investigation and Remedial Action Selection Report (RI/RASR) at non-Superfund sites (both abbreviated only as RIs in site description bar graphs); 2) Remedial Design (RD); 3) Remedial Action (RA); and, 4) Operation and Maintenance (O&M). However, it is important to note that remedial work at every subsite does not always proceed in this sequence. Work at a subsite may involve only an RA project where removal of a known amount of contamination is performed, such as removal of an abandoned underground storage tank.

Statistics in the text below and accompanying charts show the current status of activity at all subsites and the overall number of projects under way or completed. The subsite status and project listings are two key indicators used to track remedial progress at contaminated sites.

Between the inception of the Superfund program in 1980 and June 30, 1998, 121 New Jersey sites have been placed on the National Priorities List (NPL) for Superfund cleanups. (Four additional sites were officially added and proposed for addition between June 30, 1998 and February 1, 1999, and remedial work at these sites is not included.) As of June 30, 1998, NJDEP and USEPA were using public funds to address 54 of these sites, and six additional sites had been removed from the NPL after all remedial work was completed using public funds. Also, at the end of the State Fiscal Year 1998,

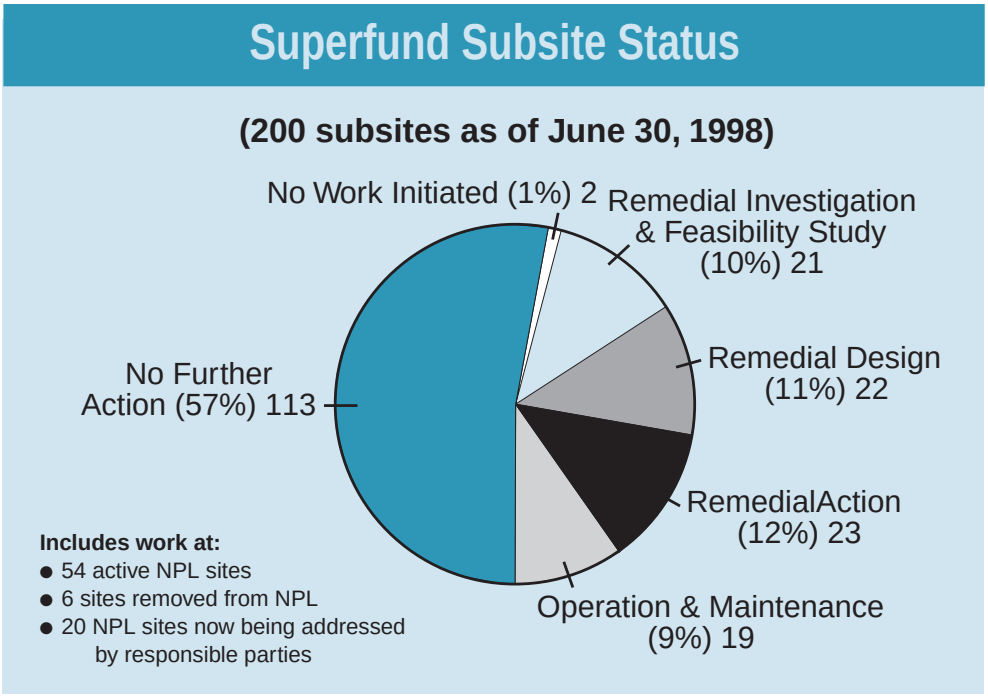

Figure 10

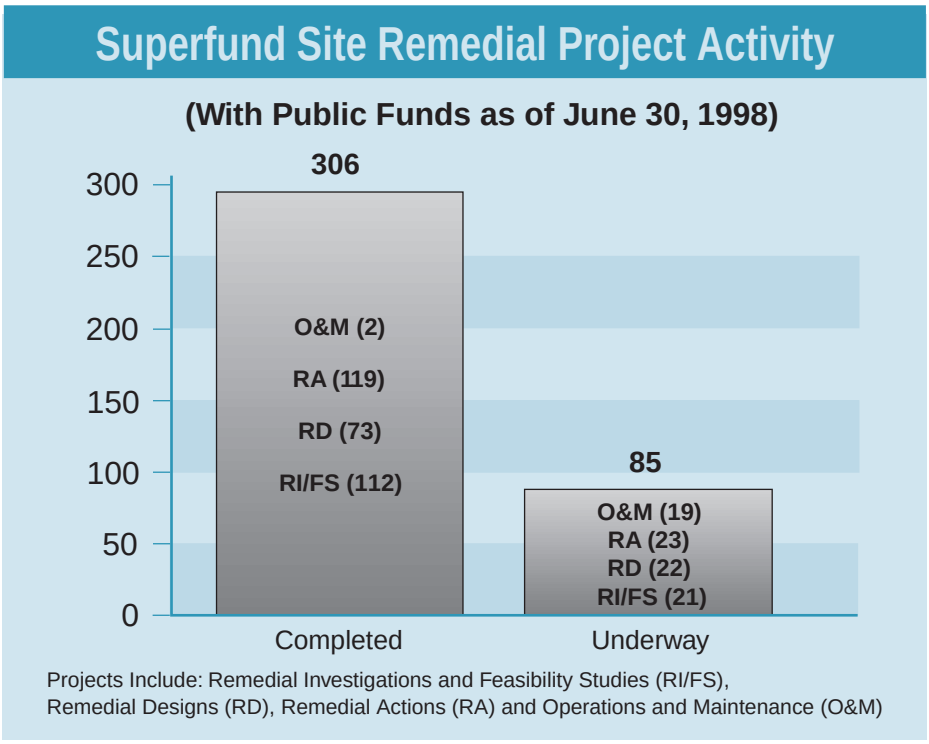

Figure 11

sites, where responsible parties have since agreed to complete the remaining remedial work, resulted in 36 subsites achieving a NFA status. All these remedial statistics are depicted in the "Superfund Subsite Status" chart in Figure 10.

Progress at these publicly funded Superfund sites also is portrayed in Figure 11 in the "Superfund Site Remedial Project Activity" chart. A full listing of these projects and the sites at which they were or are currently being performed is included in Section IV.

Public funds also are necessary to complete remedial activities at non-Superfund sites where a responsible party is unknown, or unwilling or unable to conduct the necessary work. Federal monies can sometimes supplement emergency actions or preliminary assessments and investigations at these sites. However, state funds are required to conduct the majority of remedial work as they do not meet the criteria to be placed on the NPL.

NJDEP and USEPA were administering privately funded cleanup efforts at 54 Superfund sites, and eight sites had been removed from the NPL after work was completed using private funds.

The 54 publicly funded Superfund sites active as of June 30, 1998 and six removed or proposed for removal from the NPL after publicly funded cleanups were completed have been divided into 164 subsites to track remedial progress more closely. Of this number, 77 subsites--or 47 percent--have an NFA status and no longer pose a threat to human health or the environment. The status of the remaining 87 subsites is: 21 in RI/FS, 22 in RD, 23 in RA and 19 in O&M. There are two subsites where work has yet to be initiated. Also, remedial work previously conducted by NJDEP and USEPA with public funds at 20 additional Superfund

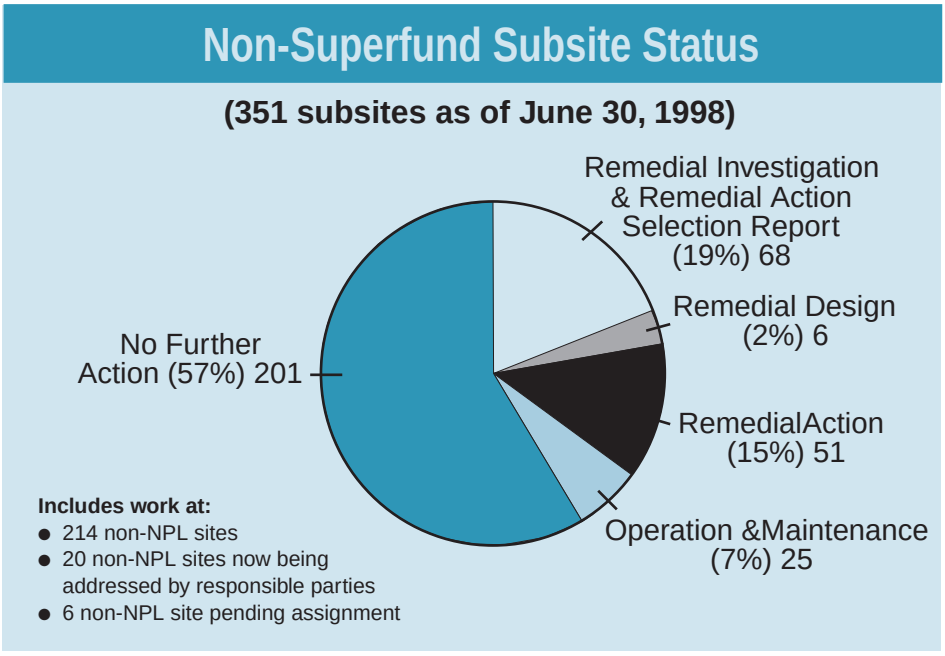

Figure 12

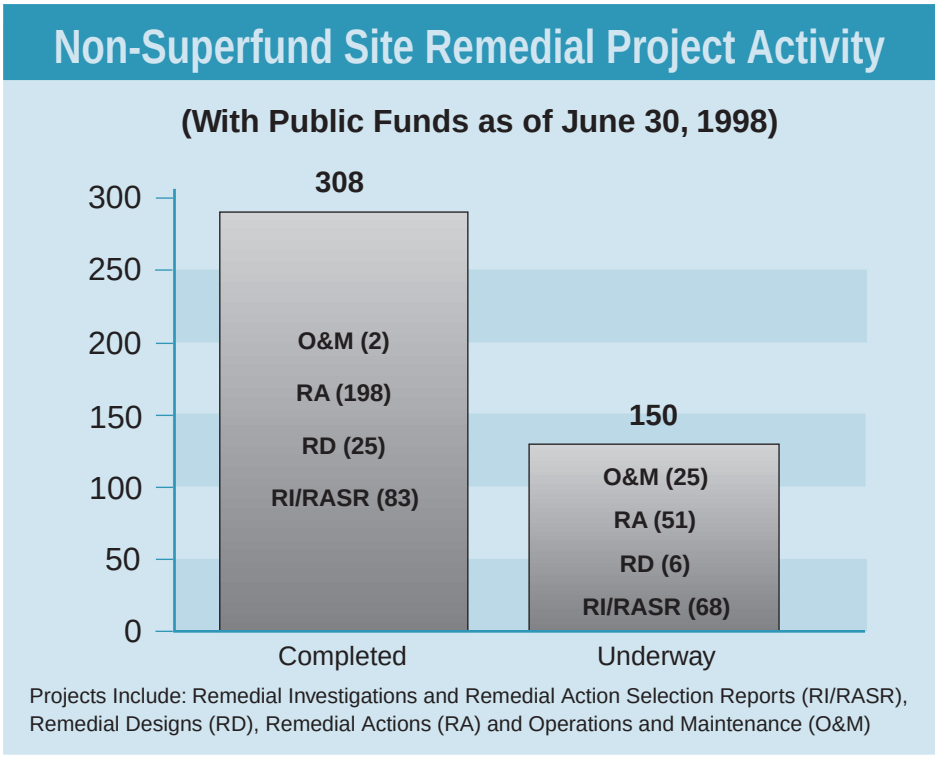

Figure 13

At the 214 non-Superfund sites that are being or have been addressed with public funds as of June 30, 1998, there are 327 subsites. Of this number, 177--or 54--percent-have an NFA status and no longer pose a threat to human health or the environment. The status of the remaining 150 subsites is: 68 in RI/RASR, six in RD, 51 in RA and 25 in O&M. Remedial work previously conducted by NJDEP with public funds at 20 additional non-Superfund sites, where responsible parties have since agreed to complete the remaining remedial work, resulted in 24 subsites achieving an NFA status. In Figure 12, the "Non-Superfund Subsite Status" chart illustrates these remedial statistics.

Progress at non-Superfund sites also is represented in Figure 13 in the "Non-Superfund Remedial Project Activity" chart. A full listing of all these projects and the sites at which they were performed is included in Section IV.

Accelerating site investigations and cleanups

Accelerating the investigation and cleanup of contaminated sites is a priority for the Division of Publicly Funded Site Remediation. Over the past several years, the Division has launched several major initiatives to streamline the remedial process. One was to develop two-year "term contracts" that established primary contractors to perform remedial investigation and design work at all Immediate Environmental Concern (IEC) sites, making it unnecessary to engage contractors for these sites on a case-by-case basis. Another was to acquire a Geoprobe ™ subsurface investigation system, which allows for rapid collection of soil and ground water samples. Finally, the Division began using the NJDEP's mobile laboratory to analyze many soil and water samples collected during the various phases of the remedial process rather than relying solely on outside laboratories for all of its analytical needs. These initiatives proved to be very effective, cutting weeks off the time required to collect and analyze samples and allowing remedial work at IEC sites to proceed at a much quicker pace.

The Division of Publicly Funded Site Remediation continued its efforts to find and implement new timesaving measures during State Fiscal Year 1998. When the IEC Remedial Investigation term contract expired in late 1997, the Division initiated a new Remedial Investigation/Remedial Action Selection (RI/RAS) term contract that will apply to almost all sites, including IEC sites, undergoing investigation after July 1998. The RI/RAS term contract enlists the services of a single engineering firm, Louis Berger and Associates of Florham Park, New Jersey, to perform the majority of the Remedial Investigations/Remedial Action Selections required by the program. A second engineering firm has also been contracted

as an alternate in the event that the primary contractor cannot work at a site due to a conflict of interest or other problem. Like the former IEC term contract, the RI/RAS term contract was competitively bid and is in effect for two years, with the option of extending it for an additional year. The primary benefit of conducting most RI/RAS under a term contract with a single firm is that it significantly reduces the amount of time required to initiate remedial investigations. At least six months are saved per site by eliminating the process of competitively bidding and awarding individual RI/RAS contracts. It is also anticipated that the primary contractor will become very familiar with NJDEP's technical and reporting requirements, which should result in accelerated time frames and higher quality work.

The Division of Publicly Funded Site Remediation also expanded its use of the mobile laboratory during State Fiscal Year 1998. Previously, the use of the mobile laboratory for testing private potable wells was limited to initial screening of the water samples prior to analysis by a certified laboratory. In State Fiscal Year 1998, NJDEP approved the use of the mobile laboratory to conduct second round analyses of potable well water to confirm initial sampling results provided by a certified laboratory. This new application eliminates the substantial delays associated with submitting second round "confirmation" samples to outside laboratories, thereby providing homeowners with rapid results on the quality of their drinking water and enabling the Division to quickly implement the appropriate remedial actions at sites where potable water is impacted.

Finally, an expanded laboratory certification program is being implemented by the NJDEP's Office of Quality Assurance that will enable the Division of Publicly Funded Site Remediation to develop contracts with analytical laboratories more quickly and with greater confidence. Under the expanded certification program, a much wider range of environmental analyses will be subject to certification. To become certified to perform these analyses, the laboratory must fulfill minimum application criteria, undergo an on-site inspection and demonstrate acceptable performance on proficiency samples. When NJDEP or one of its contractors wishes to engage the services of a laboratory, they will need only to refer to its certification status to determine whether it is qualified to perform the necessary analyses rather than having to conduct a time-consuming evaluation of its capabilities. In addition to streamlining the general laboratory contracting process, the expanded certification program will make it easier for the Division of Publicly Funded Site Remediation to award term analytical contracts to laboratories in the future.

Remedial Priority Scoring update

Remedial Priority Scoring is a system that was developed by NJDEP to rank contaminated sites awaiting assignment within the Site Remediation Program to ensure that these sites are addressed on a "worst first" basis. NJDEP uses information obtained from internal documents, local health departments and other agencies to evaluate the risk that each of these sites presents to human health and the environment. Various criteria are used to evaluate the risks at a site, including whether there is confirmed or potential contamination of the ground water, surface water bodies and surface and subsurface soils. By assigning numeric values to the relative risks posed by these conditions, NJDEP calculates a Remedial Priority Score for the entire site. The Remedial Priority Score is then used to rank the site compared to the other sites that have been scored. Since the inception of the scoring system in 1996, NJDEP has determined Remedial Priority Scores for approximately 1,200 currently inactive sites. Approximately 1,500 sites remain to be scored as of February 1999, and other contaminated sites will continue to be added to that inventory as their existence becomes known. After the scores have been finalized, the potentially responsible parties will be notified of the

Remedial Priority Scores that have been determined for their sites and directed to investigate and clean up their respective sites under the supervision of the Site Remediation Program's Division of Responsible Party Site Remediation. If a potentially responsible party indicates an unwillingness or inability to conduct the required work, the site will be added to a list of sites to be addressed by the Division of Publicly Funded Site Remediation using public funds. The sites on this list will be assigned to a NJDEP site manager in an order based on their Remedial Priority Scores, and NJDEP will seek reimbursement for the investigation and cleanup costs from the Potentially Responsible Parties at a later date.

Mitigating IEC threats

An Immediate Environmental Concern (IEC) case is one where contamination present poses an imminent threat to public health and the environment and demands an expedited remedial action. An IEC case will typically fall in one of the following three categories:

1. Contaminants in excess of New Jersey Drinking Water Standards are detected in private potable wells or a municipal supply well.

2. Organic vapors volatilizing from contaminated soil or a plume of contaminated ground water accumulate in an enclosed area, such as a basement, creating an explosion hazard and/or the potential for inhalation of toxic fumes.

3. A discharge of hazardous substances at a site presents a direct contact hazard.

During State Fiscal Year 1998, NJDEP's Division of Publicly Funded Site Remediation was actively involved in remediating 66 IEC sites in New Jersey. Of this number the great majority, more than 80%, fell into the first category described above. To provide clean drinking water to residents whose potable water supplies have been contaminated, NJDEP usually has several options. In the case of contaminated private potable wells, NJDEP may install Point-of-Entry-Treatment (POET) water filtration systems on the wells, or connect the residence to a public water line if one is available. Another option, although rarely utilized, is to drill a new deeper well for the resident. In the case of a contaminated municipal supply well, NJDEP will usually install a water treatment system, such as an air stripper or a carbon filtration unit, at the well field to return the well to service.

Two cases that NJDEP addressed during State Fiscal Year 1998 represent good examples of the other types of IEC categories described above. In early 1998, NJDEP remedied an unusual contact hazard in a private residence in South Orange, Essex County. Paneling and flooring in a room in the basement of this home had become radioactive as a result of laboratory operations that occurred there during the 1950s. NJDEP removed and properly disposed of the radioactive materials and rebuilt the room for the resident. In the summer of 1998, NJDEP excavated 3,000 tons of gasoline-contaminated soil from a former gasoline station in Middlesex Borough, Middlesex County. The soil removal was conducted as part of a larger IEC remedial action that has been underway for the last several years to address gasoline vapors that are accumulating in neighboring residences. NJDEP had already installed a soil vapor recovery system and free-product recovery system at the site to help mitigate the residential vapor problem, and plans to install an improved recovery system in early 1999 to accelerate the removal of gasoline product from the water table.

Third party contracts with local governments enhance IEC water line and well field projects

During State Fiscal Year 1998, the Division of Publicly Funded Site Remediation facilitated the installation of water lines at six ground water contamination sites and water treatment systems on three contaminated public supply wells at a cost of almost $11 million. Summaries of the individual cases are provided in Figure 13, and

Water Line and Well Field Remediation Projects in SFY 1998

Site Name	Municipality/County	Project	Cost
Allendale Road Ground Water Contamination	Upper Township, Cape May	Water Line	$685,000
Atco Avenue Ground Water Contamination	Waterford Township, Camden	Water Line	$1,900,000
Beesley's Point Ground Water Contamination	Upper Township, Cape May	Water Line	$595,000
Camden City Water Dept. Parkside Well Field	Camden City, Camden	Air Stripper	$1,700,000
East Hanover Ground Water Contamination	East Hanover Township, Morris	Water Line	$1,000,000
Flemington Water Department Well 7	Flemington Borough, Hunterdon	Air Stripper	$400,000
Glenwood Terrace Ground Water Contamination	Bridgewater Township, Somerset	Water Line	$500,000
High Bridge Water Dept. Well Field	Lebanon Township, Hunterdon	Air Stripper	$185,000
Independence Twp Ground Water Contamination	Independence Township, Warren	Water Line	$4,000,000

Figure 13

further details about these cases can be found in the Site Description section of this report.

Three cases that are particularly noteworthy are the Camden City Water Department Parkside Well Field air stripper project and the Independence Township and Atco Ground Water Contamination water line projects. The Parkside Well Field, which supplies Camden City with approximately 20% of it water supply during peak usage periods, was taken out of service in 1996 because its three supply wells were contaminated with volatile organic compounds. In early 1998, the Division of Publicly Funded Site Remediation worked with the Camden City Water Department to install an air stripper at the Parkside Well Field to return two of the three affected wells to service. The third well is being kept out of service because the extremely elevated levels of volatile organic compounds present make treatment impractical. The site has been referred to the Division's Site Assessment Section to determine the source or sources of the contamination.

In Independence Township, Warren County, public water lines were installed to serve about 150 residences whose private wells were contaminated or at risk of becoming contaminated with volatile organic compounds from a plume of ground water originating from a local industry where photoelectric devices are manufactured. The potentially responsible party has paid a settlement to NJDEP for its expenses and has conducted a full investigation of the soil and ground water at his property under the oversight of the Site Remediation Program's Division of Responsible Party Site Remediation.

In March 1998, construction of public water lines was begun in Atco (Waterford Township), Camden County to replace approximately 180

Commissioner Shinn, left, and Assistant Commissioner Gimello, second from right, join Assemblywoman Connie Myers and Borough Councilman Joseph Novick in marking the startup of the air stripper on Flemington Water Department Well 7 in Spring 1998.

private potable wells in an area where elevated levels of mercury and volatile organic compounds were found in the ground water. There is no well-defined plume of ground water contamination, and more than one source is suspected. The Division's Site Assessment Section is investigating the area to identify potential sources of the contamination.

In all nine of these water line and well field remediation cases, NJDEP used "third party contracts" to involve local governments and agencies in the projects, minimize costs and increase efficiency. Under the third party contract system, a municipality or the franchised water purveyor in the area affected by the ground water contamination enters into a contract with NJDEP to assume responsibility for designing and constructing the water treatment facility or water lines, service connections and private well sealing. NJDEP functions in an oversight capacity, approving the engineering designs and reviewing project construction. NJDEP also allocates the money to perform the work from the Hazardous Discharge Bond Fund or Corporate Business Tax Fund to either the municipality or the water purveyor.

There are three major advantages to implementing the water line and well field treatment projects using the third party contract system. First, municipal officials and other parties familiar with the community maintain control of the "hands-on" work involved in the design and construction of the water line or water treatment system. This is especially important when water lines are being installed and close contact with homeowners is required. Second, the clear division of responsibilities avoids duplication of effort, saving time and money for both NJDEP and the local government and agencies. Finally, most or all of the costs for the project are paid by the state, which saves the municipality from having to sell bonds to finance the entire project, or allows the municipality to sell smaller bonds over shorter periods, thereby cutting expenses associated with interest on the bonds.

Ground Water Impact Area update

When five or more private potable wells in close proximity are contaminated above drinking water standards, NJDEP will generally designate a Ground Water Impact Area (GWIA) at that locality. Over the past 12 years, NJDEP has been involved in investigating over a 100 GWIAs across the state. At many of these sites the contaminants found in the potable wells were common volatile organic compounds such as degreasers, dry cleaning solvents and gasoline constituents. NJDEP took appropriate measures in each of these cases to provide clean water to those who needed it, either by installing POETs on the wells or by connecting the properties to public water lines.

In 1997, the Division of Publicly Funded Site Remediation initiated an effort to evaluate ground water quality in areas proximal to GWIAs where alternate water supplies had been provided but no sources have been identified. An initial group of 17 GWIAs was studied over a period of 18 months. NJDEP collected water samples from approximately 400 potable wells around the GWIAs and found that a total of 32 wells at five separate GWIA locations were contaminated with volatile organic compounds or mercury at levels exceeding New Jersey Drinking Water Standards. Public water lines were extended in two of these cases and POETs were installed on the remaining wells. NJDEP will monitor selected potable wells at the areas where the sampling showed that conditions are still changing.

Over the next two years, the Division of Publicly Funded Site Remediation will be evaluating conditions at approximately 50 additional GWIAs where volatile organic compounds are the primary contaminants of concern. This process will entail reviewing all available information about these sites, consulting with the local health officials, and developing and implementing plans to sample about 20 potable wells per GWIA. If this sampling reveals that additional wells are

contaminated, then alternate water supplies will be provided.

Community involvement activities

As part of the Site Remediation Program's public outreach program, the Bureau of Community Relations held 19 public meetings or briefings related to Superfund and non-Superfund sites in State Fiscal Year 1998. Issues discussed included proposed cleanup plans, commencement of Remedial Actions, the interim status of Remedial Investigations and Feasibility Studies and other topics. For example, a public meeting was held in Marlboro Township, Monmouth County to discuss the findings of a Remedial Investigation and Feasibility Study at the Burnt Fly Bog Superfund site and NJDEP's proposals to complete the cleanup of the site. Three meetings were held in Manville Borough, Somerset County during State Fiscal Year 1998 as part of the Site Remediation Program's public outreach efforts regarding the investigation of the former Federal Creosote facility, a site that was added to the Superfund list in January 1999. In Morristown Town, Morris County, an informal information session was held to provide a concerned citizens group and other residents the opportunity to learn about the Golderes Junkyard site and the neighboring Morristown Coal Gas site, both non-Superfund sites undergoing investigation and cleanup.

The Bureau of Community Relations was also actively involved in disseminating written materials regarding remedial activities at contaminated sites in the state, mailing and handing out more than 4,000 information documents to interested parties during State Fiscal Year 1998. These included fact sheets about individual site actions and public meeting notices, which furnished residents and officials with firsthand information on the progress of remedial activities in their communities. This unit also responded to over 2,000 requests for lists of contaminated sites and customized maps from the Site Information Program. (See the next page for more details on this service.) When requested, the Bureau of Community Relations also provided information to media representatives on the investigation and cleanup of various contaminated sites. Lastly, the Site Remediation Program staff participated in public outreach activities and conducted training at various conferences and other events to help explain the remedial process to the public.

Other documents available

The Site Remediation Program also publishes a *Known Contaminated Sites in New Jersey* report, which is a compilation of nearly 9,000 sites with known contamination that are being addressed by NJDEP with public funds or by private parties with NJDEP oversight. This report is updated and periodically released in a printed and electronic format and is available on the Site Remediation Program's web page. This report was last released in September 1997, and will be updated in the fall of 1999. Also, the Site Remediation Program publishes an *Annual Report*, detailing legislative and regulatory action and cleanups for the past year involving both publicly and privately funded actions, and is released in conjunction with the *Publicly Funded Cleanups Site Status Report*.

Other documents available for parties interested in the remediation of contaminated sites in New Jersey include: the *SRP News* (published periodically), *Guidance Document for Remediation of Contaminated Soils* (1998), *Alternative Ground Water Sampling Techniques Guide* (1994), *Field Analysis Manual* (1994), and *Field Sampling Procedures Manual* (1992). Regulations and technical guidance documents also are available.

For more information about NJDEP's Site Remediation Program, contact the Bureau of Community Relations at (609) 984-3081 or visit the program's web page at http://www.state.nj.us/dep/srp.

The Site Information Program

The Site Information Program is a free service offered by the Site Remediation Program that provides potential homebuyers, real estate agents, non-profit housing organizations, financial institutions, developers and other individuals involved in real estate transactions in New Jersey with specific information on known contaminated sites near their properties of interest. Administered by the Bureau of Community Relations, the Site Information Program employs NJDEP's Geographic Information System (GIS), a computerized mapping system that contains the names and locations of the nearly 9,000 sites on the New Jersey Known Contaminated Sites List, as well as other environmental information. By entering the address of a particular property or its approximate location into the GIS program, the Department generates a map that shows the locations of all known contaminated sites within a half mile or a mile radius of that property, as depicted below. The requestor is also provided with a list of Known Contaminated Sites for the municipality their property of interest is located in. General information about contaminated sites, referrals to other units within NJDEP and detailed fact sheets for Superfund sites and other high profile sites can also be obtained through this outreach and education program. The Site Information Program can be contacted toll free at 800-253-5647.