



SITE REMEDIATION NEWS

August 1996

Volume 8 Number 2

Environmental Technology Commercialization

By: Brian J. Sogorka, Bureau of Environmental Evaluation and Risk Assessment

The Interstate Technology and Regulatory Cooperation (ITRC) Workgroup was formed in December, 1994, as a subgroup of the Demonstration On-Site Innovative Technologies (DOIT) Coordinating Group, a Western Governor Association initiative. The goal of the ITRC is to speed the efficient, safe, and effective cleanup of waste sites by accelerating the regulatory acceptance and commercial use of innovative technologies.

Membership in the ITRC is open to any state regulatory agency. At present, approximately 25 states belong to the ITRC. In addition, ITRC membership includes representatives of stakeholder groups including national environmental groups, citizens groups, Indian nations, technology developers and vendors, consulting engineers, technology users including federal and private sector, investment companies, and federal agencies including the US Environmental Protection Agency, Department of Energy and Department of Defense.

NJDEP is a member of the ITRC and is represented on the ITRC Steering Group (Brian Sogorka), the Cone Penetrometer Site Characterization Technology Task Group (John Prendergast) and the Low Temperature Thermal Desorption Technologies Task Group (Matt Turner).

The ITRC's activities are closely related to activities being conducted under a multistate Memorandum of Understanding (MOU) for environmental technology evaluation which was signed in April, 1995. The original signatories of the MOU were the environmental commissioners of New Jersey, California, Massachusetts, and Illinois, and the MOU has recently been expanded to include Pennsylvania and New York. The MOU supports the work of the ITRC and identifies the ITRC as a building block in the development of interstate cooperation. While the scope of the MOU includes a broad range of environmental technologies, the initial efforts of the ITRC have been concentrated on characterization and remediation technologies for contaminated sites.

Through a pilot technology review project currently underway, the six MOU states will be evaluating twelve technologies (two from each state) in an effort to define a process for the reciprocal evaluation, acceptance and approval of environmental technologies among the six states. The department's newly formed Office of Innovative Technology and Market Development is coordinating New Jersey's participation in the MOU project as well as a variety of other innovative technology projects including the New Jersey Corporation for Advanced Technology (NJCAT). The function of this new office will reinforce the mutually beneficial relationship between a clean environment and a healthy economy. If you wish to contact this office, please call 609-984-5418.

The ITRC is exploring mechanisms that decrease the amount of time it takes for new technologies to become widely accepted. Initial efforts of the ITRC focused on the following technology classes:

- 1) in situ bioremediation;
- 2) real-time field characterization using fiber optic sensors in cone penetrometer system;
- 3) low temperature thermal desorption technologies;
- 4) plasma technologies.

The ITRC has completed the following work efforts for each technology area:

1. In Situ Bioremediation

A report of case studies has been prepared which describes how several states successfully overcame institutional and regulatory barriers to in situ bioremediation. In addition, a general outline for in situ

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Environmental Technology Commercialization (continued)

bioremediation technology demonstrations has been developed, along with outlines for bioventing and natural attenuation/remediation. Proposals for in situ bioremediation developed according to the outlines should contain sufficient detail to allow other parties to identify the applicable regulatory requirements for the project, the nature and scope of the project, the advantages this technology may offer, and concerns that the public or other stakeholders may have with the project. The outlines may then be expanded to create a site specific workplan for implementation of the technology.

2. Real-time Field Characterization

The SCAPS-LIF (Site Characterization and Analysis Penetrometer System Laser Induced Fluorescence) was evaluated and accepted as a suitable field screening technology by seven states.

The SCAPS-LIF technology is a real-time in situ subsurface field screening method for petroleum, oil and lubricants that contain polynuclear aromatic hydrocarbons (PAHs). The states concluded that, with the appropriate number and placement of confirmatory laboratory samples, the SCAPS-LIF field screening system should produce reliable qualitative data capable of providing a detect/non-detect measurement of petroleum contamination in soil and an acceptable means of estimating the subsurface distribution of petroleum contamination. This technology evaluation effort used the state of California's certification process as a basis for multistate approval of this technology.

3. Low Temperature Thermal Desorption Technologies

Low Temperature Thermal Desorption (LTTD) is a treatment technology that removes contaminants from solid media by volatilizing them with heat, but without combustion of the media. LTTD has been widely used in treating petroleum contaminated wastes and is being used increasingly in the cleanup of manufactured gas plant (MGP) wastes and hazardous constituents, notably chlorinated solvents and pesticides.

A five-state workgroup developed technical requirements for regulatory approval of LTTD technology. The document was then peer-reviewed by the full ITRC and was accepted for use by many states. By obtaining concurrence on the regulatory requirements from many states, it is expected that the technology will be able to move more easily from state to state,

without unnecessary redevelopment and review of technical requirements. The requirements cover areas such as pre-treatment soil sampling, feed soil limitations, soil treatment verification sampling, soil handling and stockpiling, thermal system operating requirements, air emissions monitoring requirements, record keeping, QA/QC and health and safety.

4. Plasma Technologies

Plasma technology is a thermal technology in which heat is generated by passing an electrical current through a gas. The ionized gas is sometimes referred to as plasma. Plasma technology produces a vitrified ceramic slag and a gas stream which can usually be treated using conventional technology. This technology has the potential to treat both organic and inorganic contaminants in both liquid and solid waste, including soil.

A six-state workgroup prepared a document that provides a general technology description, regulatory pathways for permitting the technology, case studies of technology applications and projections for future applications of the technology.

Technology classes identified for potential future work include permeable barrier walls for in situ ground water treatment, soil vapor extraction, and treatment of soil contaminated with metals.

In addition to the technology focus areas, the ITRC has developed an effective electronic communications network for its members which allows for rapid multi-state/stakeholder review of documents and other products. The network also provides a convenient forum for information updates on technology demonstrations and a variety of technical and regulatory information.

SITE REMEDIATION NEWS

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Focusing On Productivity Through Data Sharing Initiatives

The Site Remediation Programs (SRP) goal of 100 percent data quality and optimum data sharing is closer to becoming a reality after the appointments of element level database administrators (DBAs) and an SRP-wide DBA. The DBA process is part of the SRP's distributed information strategy, which places data authority and ownership at the local level where the data is used by staff. The DBAs are :

SRP-Wide: John Tolleris

Discharge Response Element: Clare Whittaker

Hazardous Site Science Element: Gary Czock

Industrial Site Evaluation Element

Underground Storage Tanks: Don Cramer

Environmental Evaluation Cleanup and

Response Assessment: Henry Kindervatter

Program Support Element: Debbie Ethington

Remedial Planning and Design Element:

Phil Shortino

Responsible Party Cleanup Element: Glenn Savary

The group's mission is to manufacture a data system for SRP that provides all SRP staff with prompt access to quality data. The data architecture designed within the SRP will also be shareable with other NJDEP programs and offer integration with the department's Geographic Information System (GIS). The DBA process will improve the information management practices that support site-specific decisions. A better supported decision making function will result in more efficient decisions. This is expected to reduce costs to the regulated community.

The DBA process is coordinated by the SRP-wide DBA John Tolleris, under the Program Support Element Assistant Director George H. Klein. Mr. Tolleris can be reached at (609) 777-4297 or via Email GlenCar@AOL.COM.

General Information:

Please be sure to include the box number on all mail addressed to the Industrial Site Evaluation Element. Some mail has been received by the element many weeks past the date on the correspondence due to the omission of the box number. The proper way to address mail to the element is:

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Industrial Site Evaluation Element
CN 028
Trenton, New Jersey 08625-0028

BUST Announces Outreach Effort to Help UST Owners/Operators Comply With 1998 Deadlines

By: Doug Burry, Bureau of Underground Storage Tanks

With 1998 just around the corner, the Bureau of Underground Storage Tanks (BUST) is making every effort to help underground storage tank (UST) owners and operators comply with requirements for the upgrade and maintenance of their USTs. With this goal in mind, BUST mailed a package of material in April to help UST owners and operators in two ways. First, the package included a postcard for owners/operators to send back to BUST to show their interest in a free UST seminar. Second, the package contained reading materials that provide useful information about tank owners' and operators' responsibilities under state and federal law. The seminar and the reading material are discussed in greater detail below.

The DEP, with the support of the U.S. Environmental Protection Agency (EPA), will offer a free seminar for UST owners and operators. **The seminar will be open to owners and operators of USTs only. Consultants and contractors need not inquire regarding attendance. In the event that extra seating is available, consultants and contractors will receive notice in a future issue of the *Site Remediation Newsletter*.** The general subjects of the seminar will be UST upgrade and leak detection. Possible topics include corrosion protection, leak detection, and UST insurance. Recipients of the packages were asked to help decide the specifics of the seminar by filling out and returning a postcard telling BUST what topics they wanted to learn more about, when they wanted the seminar, and their preferred location for the seminar. The returned postcards will allow the DEP to organize the seminars in a manner that will best suit UST owner/operator needs. The seminars will probably take place in late summer or fall of this year.

The package included two pamphlets entitled *Don't Wait Until 1998* and *Straight Talk on Tanks* which were initially developed by the EPA and have been modified to incorporate the laws and regulations of New Jersey's UST program. *Don't Wait Until 1998* discusses tank upgrade requirements, including corrosion, spill, and overflow protection. This pamphlet provides an overview of what is required to bring a regulated tank into compliance with the upgrade requirements, which must be implemented by December 1998. *Straight Talk on Tanks* focuses on leak detection. This pamphlet should be referred to for more detailed information regarding leak detection requirements for tanks and piping.

BUST Announces Outreach Effort to Help UST Owners/ Operators Comply With 1998 Deadlines (continued)

Also, contained in the package was a fact sheet discussing financial responsibility requirements. This sheet gives a quick overview of which tanks need financial responsibility, options for demonstrating financial responsibility, and how much coverage is needed.

BUST is in the process of developing two additional booklets for UST owners and operators. *Manual Tank Gauging* and *Doing Inventory Control Right* were also initially developed by the EPA and then modified to include the laws and regulations of New Jersey's UST program. *Manual Tank Gauging* explains how to use inventory control measurements as a method of leak detection on some small USTs. *Doing Inventory Control Right* illustrates the proper method for performing inventory control on USTs. Both of these booklets are currently being printed. Please call the Bureau of Underground Storage Tanks at (609)292-8761 for availability and ordering information.

The seminar and the reading material are only the beginning of the DEP's efforts to help UST owners and operators comply with upgrade and other requirements. In the near future, the DEP will distribute a self-audit checklist to help owners and operators systematically evaluate their UST facilities to assure that all the necessary components for compliance are in place. Results of these self-audits will help the DEP to organize compliance inspections of certain facilities. These inspections will concentrate on helping cooperative owners and operators understand their upgrades and comply with leak detection and financial responsibility requirements, rather than on strict enforcement of the requirements. A record of compliance or non-compliance will be noted. The DEP will utilize conventional enforcement measures for those with repeat non-compliance and for those UST systems that are not in compliance and which leak and cause harm to public health and the environment.

If you have any questions about the seminar or the pamphlets, please contact David Rubin, Bureau of Underground Storage Tanks, at (609)633-1284.

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Correction

Because of editorial oversight, the article entitled "Supporting A Ground Water and Soil Natural Remediation Proposal" by Sharon P. McLelland (March 1996) contained several errors that require correction. These are as follows:

1. Throughout the article, it was stated that methane is an electron acceptor in methanogenesis. Methane is fully reduced and is the product of methanogenesis. Carbon dioxide or methanol are the electron acceptors.
2. Likewise throughout the article, the term "biogeochemical" should be used in place of "geochemical," since the described processes are microbiologically mediated.
3. In the discussion of low oxygen environments in the section "Evaluation the Site's Geochemical Indicators," the term "hypoxic" was used; this is a medical term and is inappropriate in this context. The proper ecological term applied to the microbial environment is "anoxic."
4. Under paragraph two in "Anaerobic Environments," the discussions of limited amounts of available oxygen was ambiguous. The term "reduced" was used to describe oxygen. This can be confusing in that chemical reduction is implied. The term "depleted" is more appropriate.
5. In the last paragraph of "How Natural Remediation Acts as a Remedial Strategy, the term "class" was used in the discussion of the shape of hydrocarbon molecules. Rather, the author was referring to the chemical "structure" of the hydrocarbon.
6. In the same paragraph, the discussion of the number of carbons in a η -alkane and its effect on degradation is incorrect. Even and odd numbered η -alkanes do not degrade at differential rates, rather degradation of η -alkanes occurs by transformation to fatty acids and sequential cleavage of 2-carbon intermediates from one or both ends of the η -alkane in a process known as beta-cleavage.
7. In the seventh paragraph in "Measuring for the Secondary Indicators, dehydrogenase enzyme activity was suggested as a means to estimate aerobic microbial activity. While there is dehydrogenase activity in aerobic metabolism, the dehydrogenase test measures the reduction of a dye. This dye will re-oxidize in the presence of oxygen making measurement impossible. Dehydrogenase is a better estimator of facultative anaerobic metabolism (low oxygen), but some experience is required to produce reliable results with this method.

Correction (continued)

8. In the same section, carbon dioxide respiration with poison control treatments is a more direct method of estimating microbial activity and should be considered when these data are needed.
9. The Microbial Degradation Checklist is very ambiguous and should not be used as guidance at this time.
10. Manganese also acts as an electron acceptor for microbial respiration in that Mn^{+4} is reduced to Mn^{+2} in low aerobic environments.
11. Carbon: Nitrogen: Phosphorous ratio of 100:10:1 is optimal for growth of organisms, but to optimize the rate of hydrocarbon mineralization, ratios somewhat deficient in nitrogen (100:5:1) are required.

Natural Resource Damages – An Overview of the Program and the Importance of Coordination Between the Site Remediation Program and the Office of Natural Resource Damages

By: Barbara Dietz and Martin McHugh, Office of Natural Resource Damages

The Office of Natural Resource Damages (ONRD), formed in 1993, is part of the Natural and Historic Resources. The Office of the Assistant Commissioner for the mission of ONRD is to provide for the restoration of New Jersey's natural resources that have been injured by oil spills or other discharges of hazardous substances and hazardous waste sites. Federal and state laws define natural resources as land, fish, wildlife, biota, drinking water, wetlands, and other resources, such as public beaches and parks. Restoration includes activities to replace destroyed resources or enhance those that have been damaged. Superfund (CERCLA), the federal Oil Pollution Act of 1990 and the federal Water Pollution Control Act charge state and federal natural resource agencies with the responsibility to document injuries to resources and to work cooperatively to undertake activities to restore resources that have been injured. In New Jersey, the Water Pollution Control Act, the Spill Act and the reported court opinions that make up the state's common law provide additional state authority for seeking natural resource damages and restoration of injured resources.

The premise for the natural resource damage provisions in our current law dates back to the times of Roman emperors and English kings and it has developed into a body of law known as the Public Trust Doctrine. Generally, the Public Trust Doctrine provides that lands, water and wildlife are held in trust by the state for the benefit of the public and establishes the right of the public to use and enjoy these trust resources for a wide variety of recognized public uses.

Trusteeship for natural resources lies with the government agencies that manage and regulate fisheries, wildlife and public land. At the federal level, the trustees for natural resources are the Secretary of Commerce and the Secretary of Interior. The National Oceanic and Atmospheric Administration (NOAA) is the agency within the Department of Commerce that is responsible for marine resources and the United States Fish and Wildlife Service (USF&WS) is the agency within the Department of Interior (DOI) responsible for the management of federal lands, migratory birds and freshwater resources. Since DOI and NOAA authority for wildlife and fisheries overlap with one another as well as with state resource agencies, trusteeship is therefore shared and all of the agencies are considered co-trustees. The state trustees are designated by their respective governors. In New Jersey, DEP Commissioner Shinn is the designated trustee for natural resources. The Office of Natural Resource Damages (ONRD) through Assistant Commissioner Hall, represents the commissioner on natural resource damage assessment and restoration issues. ONRD, therefore, coordinates with the other state and federal trustee agencies to meet the collective obligation to ensure the restoration of injured natural resources that cross state borders and government management authorities.

While distinction between remediation, damage assessment and restoration is frequently misconstrued it is very important and beneficial to coordinate these actions. The focus of remediation is to abate the source of contamination and implement a remedy protective of public health and the environment. Natural resource damage assessment and restoration take the remedial process to the next step. The focus of ONRD and the federal trustees is to promote the restoration of natural resources damaged by discharges of hazardous substances at a site or by the remediation procedures necessary to address these discharges. Essentially, the purpose of the NRD program is to begin putting back public resources that have been lost due to these discharges.

It is important to note that natural resource damages are not penalties: assessments are performed to obtain compensation to be used for restoration. Funds collected as part of a settlement for natural resource injuries must be applied to replace the destroyed or injured resources. In most cases where the responsible parties so choose, they may undertake

Natural Resource Damages — An Overview . . . (continued)

restoration activities themselves, just as they would perform a cleanup with department oversight. In most cases, ONRD attempts to work with the responsible parties early in the process in order to identify appropriate restoration projects, to eliminate the need of economic valuation of damages. This accomplishes direct resource for resource compensation while reducing transaction costs and promoting quicker restoration. In some cases, responsible parties choose to settle natural resource damage and restoration issues with a monetary settlement. Under those circumstances ONRD and the federal trustees then identify the appropriate restoration projects and work to implement them by coordinating with both public and private environmental groups. Some current restoration projects are being accomplished through unique partnerships between DEP and various environmental and governmental groups. An example is the B. T. Nautilus oil spill. A 280,000 gallon oil spill from the tanker *B.T. Nautilus* resulted in oiled shorebirds and beaches along the entire New Jersey coast. One species specifically impacted was the piping plover, a state endangered and federally threatened species. Tarballs washed up on beaches used by the plovers for nesting, oiling adult birds and chicks. The natural resource trustees designed a restoration program. Under the plan, a partnership was formed with the Nature Conservancy, a non-profit conservation organization, the U.S. Fish and Wildlife Service and the New Jersey Division of Fish and Game and Wildlife to carry out various restoration activities such as: installation of fencing to exclude predators and beachgoers from nesting areas; preparation of educational displays; increased wardening and monitoring of nesting sites; and identification of new nesting areas.

The key to successful natural resource damage assessment and restoration is to have the trustee representatives coordinate with the remedial program during the early phases of a remedial investigation at a site. Early trustee involvement allows for the cost effective collection of natural resource data during the remedial investigation (RI) process to identify resources already impacted and those resources that may be impacted by the implementation of the chosen remedy. Significant savings of time and money can be realized if the remedial program and the PRPs are aware of natural resource damage issues at the beginning of the RI, before sampling plans are finalized and prior to mobilization in the field. Furthermore, during the development of the feasibility study, there may be opportunities to offset natural resource injuries by designing restoration options that can be built in to the remedy.

ONRD has been working to accomplish the integration of natural resource damage issues into the remedial investigation/remedial action process. In this manner, the

Site Remediation Program and the Attorney General's Office can more easily address NRD as part of the overall case.

However, there are cases where the remedial investigation has been ongoing for a long period of time and the prospect of introducing the concept of natural resource damages to the responsible party at such a stage in the remedial process is not a welcome idea. A responsible party that has completed a cleanup and received a No Further Action letter for the site will not react positively if state or federal trustees pursue a natural resource damage claim. These situations do exist since formal federal and state natural resource damage programs have only recently come into existence. While ONRD and the federal trustees are working on innovative approaches to handling such cases, it is clear that it is more effective for all involved to avail themselves of the opportunity to address NRD at the beginning of the RI.

Natural resource damage liability continues to accrue as long as the public's resources remain unrestored. ONRD's coordination of natural resource assessment and restoration issues with the federal trustees will help to limit a PRP's overall NRD liability. This type of coordinated approach between ONRD, the federal trustees and the Site Remediation Program not only best serves the responsible parties, but also ensures that the department upholds its obligations to restore, replace or acquire the equivalent of the public's resources for their enjoyment.

For more information on natural resource damage assessment and restoration issues, please call (609) 984-5475.

Contaminated Site Cleanups Progress with Public Funds New Funding Initiatives on Ballot

By: Fred Mumford, Bureau of Community Relations

The Department of Environmental Protection (DEP) released a new report entitled "Publicly Funded Cleanups Site Status Report" in March 1996 that details investigation, cleanup and monitoring progress at 333 Superfund and non-Superfund sites where federal and/or state monies have been used to fund remedial activities.

DEP Commissioner Robert Shinn presented the report to the Assembly Agriculture and Waste Management Committee when providing an update on contaminated site cleanups and calling for continued funding of the state's cleanup program.

Contaminated Site Cleanup Progress with Public Funds (continued)

"This report shows how the Department uses public funds to clean up contaminated sites ranging from a small cluster of affected residential drinking water wells to 100-acre landfills and industrial sites," said Richard Gimello, DEP's Assistant Commissioner for Site Remediation. "It is important to maintain a strong publicly funded program to continue these necessary remedial activities when no relief from responsible parties is available."

Currently, state funding projections for the publicly funded program indicate that additional monetary sources will be required in calendar year 1997 to complete site work underway and begin new projects at those sites currently in the pipeline. "The pressing need for a permanent source of state funds to carry out site cleanups must be addressed in the coming year," Gimello noted. "The obligation of the Department to conduct site cleanups is threatened without such a source of state funds."

The Governor's Office and Legislature responded to this need by approving a bond act to provide monies for contaminated site remediation including affected drinking water supplies. "The Port of New Jersey Revitalization, Dredging, Environmental Cleanup, Lake Restoration, and Delaware Bay Area Economic Development Bond Act of 1996" is a \$300 million measure that includes \$70 million to pay for investigating and cleaning up contaminated sites and providing alternate water supplies and treatment facilities to address polluted potable water supplies. This measure was sponsored by Senators Donald DiFrancesco (District 22) and Edward O'Connor (District 31) with Senate Bill Number 95 and by Assemblyman Steve Corodemus (District 11) with Assembly Bill Number 1099. Governor Christine Todd Whitman signed the act in July 1996 and it is on the ballot this fall for New Jersey voters. Other monies would go towards dredging and disposal actions in the New Jersey/New York port region (\$185 million) and other areas (\$20 million), economic development along the Delaware River and Bay region (\$20 million) and restoration of lakes throughout the state (\$5 million).

The Legislature also approved in June 1996 a constitutional amendment to dedicate four percent of the state's corporate business tax each year to publicly funded site remediation, underground storage tank grants and loans, and water quality planning and monitoring. This measure will provide DEP approximately \$48 million annually based on current collection levels. About \$24 million each year will be used to investigate and

clean up contaminated sites, while approximately \$16 million will go towards providing grants and loans to private parties to upgrade, close, remediate or replace leaking underground storage tanks. An additional \$5 million each year from the fund will be used for watershed planning and non-point source pollution programs. This measure was sponsored by Senators John Bennett (District 12), Henry McNamara (District 40) and John Adler (District 6) with Senate Concurrent Resolution 41 and by Assemblyman Steve Corodemus (District 11) and Assemblywoman Loretta Weinberg (District 37) with Assembly Concurrent Resolution 56. The question of whether to amend the New Jersey Constitution to dedicate four percent of the corporate business tax as outlined above also will be on the ballot this fall for state voters.

State funding enables New Jersey to pay the required state share for Superfund site cleanups and to conduct remedial activities at non-Superfund sites when companies or individuals responsible for contamination are unknown, unable or unwilling to perform necessary remedial work. New Jersey has received more than \$1.1 billion in federal funds from the Superfund program and has dedicated more than \$650 million in state funds to support publicly funded cleanups.

"In New Jersey, significant cleanup progress has been achieved with public monies as evidenced by the fact that more than half of all environmental problems have been addressed at Superfund and non-Superfund publicly funded sites," said Gimello. "Also, it is important to note that more than \$900 million of the \$1.1 billion in federal monies dedicated to New Jersey Superfund sites has been spent on actual cleanups, not studies. New Jersey's share of approximately \$84 million to support these Superfund sites resulted in a very successful return of federal monies for the state's residents and the environment." (See Figure 1.)

New Jersey's Success at Securing Superfund Dollars

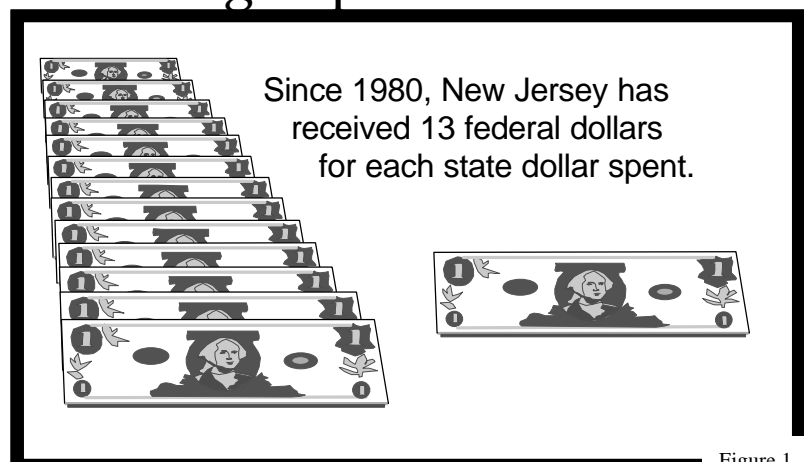


Figure 1

Contaminated Site Cleanup Progress with Public Funds (continued)

Overall state public funds dedicated to New Jersey's cleanup program since 1977 include: \$242 million from state taxes on businesses generating or using hazardous substances collected through the New Jersey Spill Fund; \$250 million in state bond funds approved by the voters in 1981 and 1986; 103 million in general state funds approved by the Legislature; and, \$62 million from the Hazardous Discharge Site Cleanup Fund that includes monies recovered from responsible parties stemming from past state expenditures and a variety of other sources. An additional \$50 million in state bond funds were transferred to a loan program created by the Legislature in 1993 to help fund private cleanups with DEP oversight at various types of sites in the state.

In terms of cleanup progress, the status report notes that at the Superfund and non-Superfund publicly funded sites, 44 percent of environmental problems, which are broken down and tracked as subsites, have been completely remediated and no longer pose a threat to human health or the environment. Also, 11 percent of the environmental problems are being controlled with active treatment systems and/or are being monitored to ensure the integrity of past remedial work. DEP achieved this progress by completing 242 remedial action or (cleanup) projects and managing 51 operation and maintenance projects that are now underway.

The report provides information on 312 sites that have been or are being addressed with public funds and 21 sites where public monies were initially expended before responsible parties agreed to complete the work. Contaminated sites are divided into subsites that allows for variation in the speed and extent to which problem areas at a site are addressed, often with the most immediate environmental concerns handled first. Statistics presented in the report show the status of activity at subsites and the number of projects (e.g., remedial investigations, remedial designs, remedial actions) completed and underway. The subsite status and project listings are two key indicators used to track remedial progress at contaminated sites in New Jersey. Included in the report are 160 individual descriptions of sites with active remedial measures underway and one additional "site" description that encompasses 45 separate sites affected by chromium contamination in Hudson County. Various remedial activities have been performed at these sites, including numerous successful cleanup actions; however,

all work is not yet completed. The remaining 128 sites included in this report are categorized as follows: 54 Water Supply sites where DEP provided an alternative drinking water supply or treatment system and is or will be investigating the source of the contamination; 27 Pending sites where DEP is considering taking action with public funds; 26 No Further Action sites where DEP has completed all remedial action; and, 21 sites where remedial work was conducted with public funds or administered by DEP before the responsible parties agreed to complete the remaining work.

The 55 currently active, publicly funded Superfund sites and four removed from the Superfund list after cleanups were completed using public funds have been divided into 151 subsites. Of this number 64 subsites — or 42 percent — have a No Further Action (NFA) status and no longer pose a threat to human health or the environment. The status of the remaining 87 subsites is: 18 in Operation and Maintenance; 15 in Remedial Action; 27 in Remedial Design; and, 24 in Remedial Investigation and Feasibility Study. There are three subsites where work has yet to be initiated. Also, remedial work previously conducted by NJDEP and USEPA with public funds at 14 additional Superfund sites, where responsible parties have since agreed to complete the remaining work, resulted in 23 subsites achieving a NFA status and one in O&M. (See Figure 2.) Progress at these Superfund sites also is measured by remedial projects completed and underway that include: 89 Remedial Action projects completed and 14 underway; 53 Remedial Design projects completed and 26 underway; 92 Remedial Investigation and Feasibility Study projects completed and 18 underway; and, 19 Operation and Maintenance projects underway. Listings of these projects are included in the report's appendixes.

Superfund Publicly Funded Subsite* Status

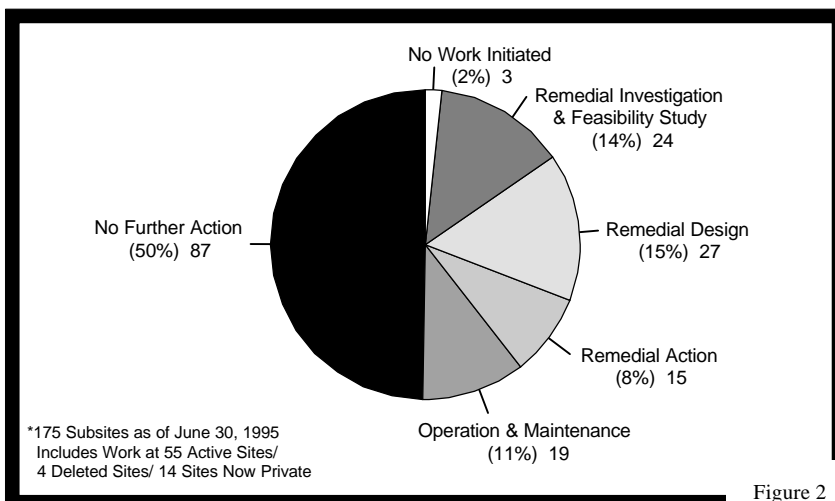


Figure 2

Contaminated Site Cleanup Progress with Public Funds (continued)

At the 214 non-Superfund sites that are being or have been addressed with public funds, there are 298 subsites. Of this number 134 — or 44 percent — have a NFA status. The status of the remaining 165 subsites is: 32 in Operation and Maintenance; 22 in Remedial Action; five in Remedial Design; and, 33 in Remedial Investigation and Remedial Alternatives Analysis. There are 72 subsites where work has yet to be initiated. Also, remedial work previously conducted by NJDEP with public funds at six additional non-Superfund sites, where responsible parties have since agreed to complete the remaining work, resulted in seven subsites achieving a NFA status. (See Figure 3.) Progress at these non-Superfund sites also is measured by remedial projects completed and underway that include: 153 Remedial Action projects completed and 21 underway; 24 Remedial Design projects completed and six underway; 40 Remedial Investigation and Remedial Alternatives Analysis projects completed and 33 underway; and, 32 Operation and Maintenance projects underway.

Most subsites routinely require a series of remedial projects to address the specific environmental concern associated with that subsite. As remedial projects are begun or completed, a subsite’s status advances. This means that the environmental problem at each subsite moves toward a status of No Further Action (NFA), the primary end point in the remedial process. It is also noteworthy to mention that when a subsite enters Operation and Maintenance, the environmental problem has been addressed and essentially brought under control.

The report has been provided to health agencies participating in the County Environmental Health Act program and municipalities were sent descriptions of sites within their locales included in the report. The report also was placed in state repositories throughout the state. A listing of these repositories is available through the state library at (609) 633-2111.

A 1996 update of the *Publicly Funded Cleanups Site Status Report* is scheduled to be released in October 1996.

Non-Superfund Publicly Funded Subsites* Status

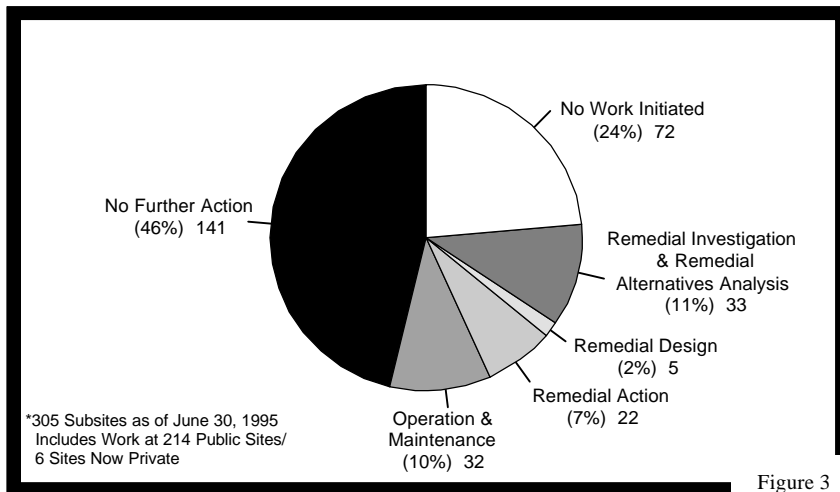


Figure 3

General Information:

The *Site Remediation News* is published by the Program Support Element. If you want to receive the *Site Remediation News*, send a request containing your name and address to:

George H. Klein
Program Support Element
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Trenton, New Jersey 08625-0413

FYI: The *Guidance Document for the Remediation of Contaminated Soils* is presently under revision. New copies should be available on or about September 30, 1996.

State of New Jersey
Department of Environmental Protection
Site Remediation Program
CN 028
Trenton, New Jersey 08625-0028
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Christine Todd Whitman, Governor
Robert C. Shinn, Jr., Commissioner