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Cleanup News ***is an occasional newsletter highlighting hazardous waste cleanup cases, policies, settlements, and technologies.***

Koch Industries to Pay Record Civil Fine

In a settlement filed in January 2000, Koch Industries will pay the largest civil fine ever imposed on a company under a federal environmental law to resolve claims related to more than 300 oil spills from its pipelines and oil facilities in six states. Koch, the second-largest privately held company in the United States, will pay a $30 million civil penalty, improve its leak-prevention programs, and spend $5 million on environmental projects.

"We will not let you foul our water and spoil our land by breaking the law."
—Attorney General Janet Reno

"[The] landmark fine against Koch Industries for egregious violations of the Clean Water Act sends a strong message that those who try to profit from polluting our environment will pay the price," said EPA Administrator Carol M. Browner.

The settlement filed in U.S. District Court in Houston resolves two lawsuits that charge that Koch illegally discharged crude oil and petroleum products in Texas, Oklahoma, Kansas, Missouri, Louisiana and Alabama. The State of Texas joined the United States in suing and the $30 million penalty will be divided equally between Texas and the federal government.

Headquartered in Wichita, KS, Koch

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New Amendment Exempts Recyclers from Superfund Liability

On November 29, 1999, President Clinton signed into law the Superfund Recycling Equity Act which exempts certain "generators" and "transporters" who recycle materials in accordance with this law from liability under CERCLA. The statute was passed as part of the Omnibus Appropriations bill and is the only Superfund amendment enacted in the first session of the 106th Congress.

The Superfund Recycling Equity Act (SREA) has its roots in legislation introduced back in the 103rd Congress and supported by this Administration. SREA exempts generators and transporters who "arranged for recycling of recyclable materials," from the generator and transporter liability sections of CERCLA. The new statute outlines the criteria necessary for exemption.

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Printed on recycled paper

Koch Industries

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Industries owns and operates extensive underground and above ground pipelines that transport crude oil and related products in the Midwest. Most of the spills at issue in the settlement occurred in Oklahoma, Texas, and Kansas. In one case, almost 100,000 gallons of oil was spilled in Texas and caused a 12-mile oil slick on Nueces Bay and Corpus Christi Bay.

Complaints filed in 1995 and 1997 alleged that Koch unlawfully allowed some 3 million gallons of crude oil and related products to leak from its pipelines into ponds, lakes, rivers and streams, or onto adjacent shorelines, from 1990 to 1997. Most of the spills were caused by corrosion of pipelines in rural areas. The governments allege that Koch could have prevented the corrosion by proper operation and maintenance.

Under the settlement, Koch must assess the condition of 2,500 miles of pipeline that it currently operates and repair any defects. The settlement also requires Koch to implement an improved leak-prevention and detection program, a maintenance and inspection program, and a training program aimed at preventing leaks from the company's pipelines. The company also must hire an independent auditor to audit Koch annually for at least three years and report to the federal government and Texas on whether the company is meeting the requirements of the settlement and applicable laws.

In addition to changing its operations, Koch also must spend a total of $5 million on environmental projects in the states most affected by its illegal discharges.

"This record civil penalty sends a clear message to those who transport hazardous materials: You cannot endanger public health or the environment," said Attorney General Janet Reno. "We will not let you foul our water and spoil our land by breaking the law."

Oil spills can pose a serious threat to human health and the environment. One pint of oil released into the water can spread and cover an entire acre of water surface area and can seriously damage an aquatic habitat. It can take years for an ecosystem to recover from damage caused by an oil spill.

For more information, contact the Office of Regulatory Enforcement, (202) 564-2220.

Recyclers

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SREA defines recyclable materials as:

- scrap paper
- scrap plastic
- scrap glass
- scrap textiles
- scrap rubber (other than whole tires)
- scrap metal
- spent lead-acid, spent nickel-cadmium, and other spent batteries.

This definition does *not* include: (1) shipping containers with a capacity from 30 liters to 3,000 liters that contain or have hazardous substances adhering to them; or (2) any item that contained polychlorinated biphenyls (PCBs) in excess of 50 parts per million.

Transactions that involve the above recyclable materials are considered "arranging for recycling" if the arranger can show that all of the following criteria were met at the time of the transaction:

- the recyclable material met a commercial specification grade
- a market for the recyclable material existed
- a substantial portion of the recyclable material was made available for use as feedstock in the manufacture of a saleable product
- recyclable material could have been a replacement or substitute for a virgin raw material
- for transactions occurring 90 days or more after the enactment of this statute, the person took reasonable care to determine that the consuming facility was in compliance with federal, state, or local environmental laws or regulations associated with the recyclable material.

Additional criteria must be met for scrap metal and spent batteries.

A generator or transporter is not exempt from CERCLA liability if any of the following was true:

- The person reasonably believed that at the time of the recycling transaction that the recyclable material would not be recycled, would be burned as a fuel or incinerated, or that the consuming facility was not in compliance with relevant federal, state or local environmental laws or regulations.
- The person had reason to believe that hazardous substances had been added to the recyclable material for purposes other than processing for recycling.

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Third-Party Audits Eyed As Compliance Booster

A pilot project aimed at evaluating market forces to encourage third parties, such as insurance companies, to offer small businesses free compliance audits is expected to boost compliance under the Clean Air Act's chemical accident prevention program and lower costs for small businesses.

The third-party audit project is being conducted under a cooperative agreement between EPA and the Wharton School of Business of the University of Pennsylvania. The Delaware Department of Natural Resources and Environmental Control and the EPA Region 3 office in Philadelphia, also are participating in the project.

Under Section 112(r) of the Clean Air Act, facilities that manufactured, used, or stored more than threshold amounts of 130 hazardous chemicals were required to file Risk Management Plans (RMPs) with EPA by June 21, 1999, describing their safety and accident prevention procedures. Nearly 15,000 facilities filed RMP reports by the deadline.

The goal of the third-party audit program is to develop a model that would be recognized as an alternative to inspections conducted by federal regulators. EPA can delegate enforcement authority to states that have been given the go-ahead to implement the RMP program, but in these early years, the major responsibility for compliance assurance remains with EPA regional offices. Independent audits are viewed as a way to relieve EPA regional offices from compliance assurance problems that could arise due to a lack of resources.

To date, eight individuals with backgrounds in law and engineering have audited several facilities in Delaware to ensure that on-site chemicals are managed safely. All of the audited facilities were required to report information under the federal Risk Management Program and similar Delaware laws. A Delaware Dept. of Natural Resources and Environmental Control audit team also conducted separate safety and risk management audits at the sites. The two sets of audits will be compared to evaluate the adequacy and thoroughness of the third-party auditors.

Results of the pilot project will be shared with insurance companies, trade associations, public interest groups and regulatory agencies at a June roundtable discussion. For more information, contact the Chemical Emergency Preparedness and Prevention Office, (202) 260-8600.

Recyclers

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- The person failed to exercise reasonable care with respect to the management and handling of the recyclable material, such as following customary industry practices at the time of the recycling transaction.

For more information on the amendment, contact OSRE's Regional Support Division, (202) 564-4200.

Survey Finds PPAs Enhancing Redevelopment

An EPA survey of 85 prospective purchaser agreements (PPAs) negotiated between 1989 and 1998 found numerous benefits to the agreements. A PPA is a formal legal agreement through which EPA agrees not to sue the purchaser for the property's pre-existing environmental condition in exchange for the purchaser's commitment to undertake or fund some cleanup work, EPA promises not to sue the purchaser for existing contamination at the property at the time of purchase.

The interim survey results show that PPAs were instrumental in bringing about redevelopment at nearly three-quarters of the properties. The PPAs covered property ranging in size from less than an acre to over 50 acres. About two-thirds of the PPAs covered parcels of land contained within larger sites, meaning that PPAs are a useful tool for encouraging the cleanup and reuse of property without necessitating cleanup of the entire site first. Nearly half the properties were former manufacturing facilities, and another 18 percent were retail or office space. Private party respondents appear satisfied with the results of PPAs; 71 percent reported that the PPA had a positive impact on the economic viability of their redevelopment project. Benefits to the public resulting from the 85 PPAs include economic redevelopment (at 63 percent of the sites), job creation (61%), increased tax base (60%), infrastructure development (19%), and restoration of green space (15%).

As an example, a PPA for the Publicker Industries site in Philadelphia helped transform one of the worst hazardous waste sites in the Mid-Atlantic region into a $250 million multi- purpose shipping terminal. Benefits of the project include 350 permanent full-time jobs with $10.4 million in total annual income, and hundreds of thousands in annual tax revenues.

For a copy of the survey ("EPA's Prospective Purchaser Agreements: How Effective Are They?" EPA 330-R-99-001, December 2, 1999), contact OSRE's Policy and Program Evaluation Division, (202) 564-5100.

Facilitation Comes to Brownfields

As brownfield redevelopment proceeds in hundreds of communities around the nation, various stakeholders must come together — residents, community groups, developers, businesses, city and state agencies, environmentalists — either as partners or as parties to a negotiation. What to do when negotiations slow to a crawl or come crashing to a halt? And what to do when the supposed partners in a brownfield project fail to build a working relationship to get the project off the ground?

EPA is taking a leaf from the world of alternative dispute resolution by using facilitation to bridge these problems. Facilitation is a voluntary, informal, and flexible process of communication guided by a neutral professional. In addition to mediating conflicts, facilitators can identify stakeholders and issues, clarify roles and responsibilities, guide parties to a common understanding, and build a partnership among groups with diverse interests.

Currently, EPA is funding facilitation activities at nine pilot brownfield projects. Each project receives 120 hours of facilitation time. The nine pilots are at New Bedford, MA; San Diego, CA; Ogden, UT; Hudson County, NJ; Portland, OR; Shenandoah, VA; Milwaukee, WI; Comanche Nation, OK; Puyallup Tribe, WA. The effort started as an attempt to help several brownfield pilots that had "stalled out" (see accompanying article on San Diego's Barrio Logan).

What's next? According to Lee Scharf, ADR program coordinator in EPA's Office of Site Remediation Enforcement, "the idea is to get facilitation into our standard operating procedures on brownfields, as an option in each cooperative agreement, with grant monies to fund it. The idea of spending time and resources up front to solicit public input is very powerful. There are up to half a million brownfield sites around the country. I look at them as laboratories: this is where people can have a say — in land use and remedy selection."

For more information, contact OSRE's Policy and Program Evaluation Division, (202) 564-5100.

Case Study in Facilitation:
San Diego's Barrio Logan Emerging Brownfields Site

In San Diego, a brownfields project is helping the city revitalize the predominantly Hispanic community of Barrio Logan, located south of downtown San Diego. The neighborhood has a population of about 110,000, 85 percent of whom are of Hispanic/Latino origin, and one quarter of whom speak only Spanish. The unemployment rate in 1997 was 15.2 percent, compared to a city-wide rate of 5.3 percent.

The brownfields project offers the City of San Diego the opportunity to eliminate a long-standing problem of incompatible land uses in Barrio Logan. The neighborhood sits on the edge of a major industrial area and contains residences and retail stores interspersed with smaller heavy industries — chemical storage facilities, metal plating shops — that have the potential for releases of hazardous material.

Round One

In 1997, the Environmental Health Coalition (EHC), a local environmental justice group approached the City of San Diego and a nonprofit affordable housing organization; together these partners applied for and received an EPA grant aimed at "emerging brownfields." The idea was that instead of letting a business be run into the ground and then abandoned along with leftover environmental contamination, the community would provide incentives and money for the company to relocate to a more suitable, less residential location. In 1994, the City of San Diego had identified six chrome plating shops and chemical storage facilities for relocation to approriate industrial areas due to their proximity to residences. At the top of the list was "Master Plating," a small metal plating shop located in between three houses. Master Plating had also received several Notices of Violation and had been the subject of criminal enforcement action.

Although on paper Master Plating seemed like the best choice, over the next year the partners' efforts ran into a series of roadblocks. First and foremost, the concept of emerging brownfields assumes that the facility in question is economically marginal and that the facility owner has an incentive to sell and/or relocate. Master Plating, however, was a tenant business paying a sizable rent which the property

owner did not wish to lose. Initially, the partners received an opinion that the city could use its powers of eminent domain to effect a real estate transaction; subsequently, however, a newly asssigned city attorney decided this was not the case.

In early 1999, when facilitator Lewis Michaelson was brought on board by EPA, the local partners in the project were "spinning their wheels." One of the first difficulties Michaelson encountered was the absence of any sort of critical path to help the partners understand where they needed to make essential "go/no-go" decisions. Another problem was the failure of the groups to coalesce into a genuine working partnership. Michaelson started with the basics — taking meeting notes, tracking action items, insisting on follow-through and accountability. Soon the partnership began to gel as a team, and with some prodding by EPA, city managers began to accord the project priority attention.

Facilitation helped maintain a strategic focus on what the partners were doing and kept it at the top of their list.

By May 1999, however, the situation had reached an impasse. The city had authorized front-loading of its community development block grant funds so that the city could make the property owner a conditional offer. With the offer in hand, the owner granted the partners access to the site to assess how much it would cost to clean it up. Meanwhile, the owner claimed he had engaged real estate brokers to look around for other possible locations. He also claimed that a similar parcel would cost twice as much money as the city had determined was fair market value. The owner then rejected the offer, and the project was back at square one.

Barrio Logan

Round Two

With Master Plating out of the picture, the partners needed to step back and rethink their objectives. Michaelson recalls that it was a "tough lesson to learn" but that the group understood there was no point proceeding with an approach that was no longer viable. Under a new manager from the city, Ingrid Johnson, the partnership became newly invigorated. During this period, says Michaelson, "facilitation helped maintain a strategic focus on what the partners were doing and kept it at the top of their list." Facilitation also helped give each of the partners a perspective on the motivations and interests of the other partners, and thereby helped align the somewhat disparate interests of the groups involved.

As part of the regrouping, the partners went back to their original objective — to eliminate incompatible land uses that posed health and safety threats to residents of Barrio Logan. The partners decided that instead of doing detailed investigations of specific sites, they should undertake a broader, area-wide investigation to identify all incompatible land uses. The partners also realized that the real problem was the size of the "redevelopment area" that had been designated by the city. Those boundaries, drawn up years earlier, included only a small portion of the area in Barrio Logan that needed attention. Over the next few months, the project obtained an agreement in principle with the San Diego Unified Port District to fund the necessary environmental impact report which would permit consideration of an expanded redevelopment area. In late January 2000, City Councilman Juan Vargas committed to fund the remaining shortfall needed for the expansion process.

Lewis Michaelson believes that despite the numerous setbacks, most of which were not foreseeable and not anyone's fault, the project is back on course. "The bell rings and the partners keep coming back, round after round," he said. "But if it hadn't been for the commitment and drive of Diane Takvorian of EHC, of Bobbie Kahan at EPA, and of Ingrid Johnson and Juan Vargas from the City, this project would have died several times along the way."

For more information on Barrio Logan, contact Bobbie Kahan, EPA Project Manager, (415) 744-2191, or facilitator Lewis Michaelson, (858) 259-5666 x23.

Third Circuit Reverses District Court and Upholds EPA Authority in Occidental Case

On December 28, 1999, the United States Court of Appeals for the Third Circuit reversed a district court's dismissal of the government's complaint against Occidental Chemical Corporation. The government asked the court to enforce a Unilateral Administrative Order (UAO) requiring Occidental to participate in the Superfund cleanup at the Centre County Kepone Site in State College, Pennsylvania. The complaint also sought penalties under CERCLA section 106(b), reimbursement of unrecovered past costs, and a declaratory judgement for future costs.

The cleanup of the site had already been the subject of a consent decree between the government and Ruetgers-Nease Corporation.

On June 26, 1998, Occidental filed a motion to dismiss the government's complaint for lack of jurisdiction and because the government had already obtained "complete relief" from Ruetgers under the earlier consent decree, and therefore the UAO was not "necessary" to protect the public health and welfare and the environment. The government countered that it could bring an action against any person not party to an agreement and because Occidental was not a party to the earlier consent decree, the government could seek to enforce the UAO.

In dismissing the government's complaint, the district court reasoned that the government had received complete relief despite the fact that the cleanup had not been completed and there remained unreimbursed past costs. The district court held that EPA was seeking a double recovery since EPA had already obtained complete relief from its settlement with Ruetgers.

The Court of Appeals disagreed, holding that "by issuing administrative orders to non-settling PRPs under §106, EPA fulfills CERCLA's objectives of promoting fairness at multi-party sites, and accelerating the statute's ultimate goal — site cleanup." The court also agreed with the government's "reasonable understanding" of the statute and went on to point out that Section 122 of CERCLA provides express authority for the actions EPA took against Occidental, and that Section 122's principal purpose is to ensure that EPA's authority to issue administrative orders and enforce them is preserved.

The appellate court also stated that "the question of whether an order may be necessary to protect public health, welfare, and the environment goes to the status of the contamination at the site, not to who is, or who is not, obligated to address it." Therefore, the district court's finding that EPA's order was not "necessary" because of its earlier settlement with Ruetgers was in error. The Third Circuit's opinion remands the matter to the district court for further proceedings.

For more information, contact OSRE's Regional Support Division, (202) 564-4200. [United States v. Occidental Corp., 200 F.3d 143, 1999 WL 1268110 (3rd Cir. 12/28/99)]

"... the question of whether an order may be necessary to protect public health, welfare, and the environment goes to the status of the contamination at the site, not to who is, or who is not, obligated to address it."

U.S. Court of Appeals for the Third Circuit, in United States v. Occidental Corp.

Tenth Circuit Upholds EPA's Remedy Decision at Broderick Superfund Site

On December 21, 1999, the Tenth Circuit reversed the district court and concluded that EPA's remediation decision to use a cancer risk level of 1×10^{5} at the site was not arbitrary and capricious. It also held that EPA's decision to not amend the Record of Decision (ROD) for certain minor deviations in the remedy was not arbitrary and capricious. Where the remedy was altered fundamentally with respect to scope and cost, however, the appellate court held that EPA had acted arbitrarily and capriciously, but emphasized that, in order to prove damages, the defendant had to show that EPA's actions "resulted in demonstrable excess costs that would not have otherwise been incurred." In addition, the appellate court held that district court properly reduced the judgment against Burlington Northern (BN) based on a geographic apportionment of a prior settlement with other defendants and held BN liable for remediation costs incurred before EPA notified BN of its potential liability at the Site.

From 1947 to 1981, the Broderick Wood Products Company and its successor, Broderick Investment Company (BIC) operated a wood treatment facility on a 64-acre parcel of land northwest of Denver. The companies disposed of process waste on the northwest portion of the site, using two unlined impoundments. The site was placed on the National Priorities List in 1984 and a cost-recovery case was initiated in 1986.

A Record of Decision was issued in 1988 for one of the operable units and subsequently amended in 1991. In the amendment, EPA changed the initial remedial plan so that the impoundment sludge would be remedied through off-site reclamation rather than on-site incineration. EPA revised the plan because incineration costs had increased substantially and equally protective alternatives (off-site reclamation) were available. However, in the course of implementing the new remedy, the government's contractor, Allied-Signal, encountered a number of unanticipated difficulties that raised the cost of the remedy by over $1 million.

EPA's 1991 risk assessment for the site evaluated each current and hypothetical future use of the site against three potential cancer risk levels: 1×10^{-4} (a 1 in 10,000 chance of getting cancer after remediation); 1×10^{-5} (a 1 in 100,000 chance of getting cancer after remediation); and 1×10^{-6} (a 1 in one million chance of getting cancer after remediation). However, in selecting a risk goal, EPA considered the starting point risk level, 1×10^{-6}, as inappropriate in light of the continuing industrial and commercial land uses in the vicinity of the site. The 1×10^{-5} level of cancer risk was selected as a more appropriate remediation goal and is consistent with EPA's Hazardous Substance Contingency Plan.

In 1992, EPA added Burlington Northern as a defendant in the lawsuit. Burlington Northern's liability arose from Broderick's use of the pond impoundment, which belonged to Chicago, Burlington and Quincy Railroad (CBQRR), a predecessor of Burlington Northern. In the early 1960s, Broderick used the 17.5 acres tract of land for the impoundment and disposal of treatment wastes without CBQRR's permission. When CBQRR discovered the disposal, it leased the land to Broderick as a disposal site for waste for approximately six years. Eventually, in 1969, CBQRR quitclaimed the property to Broderick.

For more information, contact OSRE's Regional Support Division, (202) 564-4200. [United States v. Burlington Northern Railroad Co., 1999 U.S. App. LEXIS 33143 (10th Cir. 12/21/99)]

Favorable Statute-of-Limitations Ruling on Carlie Lee Site, Alabama

On January 14, 2000, the United States District Court, Northern District of Alabama denied a motion for summary judgment filed by defendants CSX Transportation, Inc., Lucent Technologies, Inc., and Thompson Tractor, Inc. in a cost recovery action brought by the United States in October, 1998. Defendants argued that the government had failed to file its cost recovery action within three years of completion of the removal action at the site. Defendants argued that the removal action was complete on September 15, 1994 (when replanting of grass on site was completed), whereas the United States determined that the removal action was complete on February 6, 1995 (when a draft final OSC report was submitted to EPA). The Court rejected the defendants' argument that the filing of the draft final OSC report should be ignored for statute of limitations purposes, and denied summary judgment based on those grounds.

Defendants based their argument, in part, on CERCLIS information available on EPA's web page which showed the date of "actual completion" for the Carlie Lee site removal as September 15, 1994. Citing another case, the court concluded that the defendants in this case had not shown any detrimental reliance resulting from the information on the web site, and thus would not find in favor of defendants on that basis.

Defendants also based their arguments, unsuccessfully, on more recent case law in which PRPs were successful in finding the government's action to be time-barred. (See, for example, United States v. Ambroid Co., Inc., 34 F.Supp. 2d 86 (D. Mass. 1999).)

The court's decision included other important findings, dismissing defendants' arguments that the OSC report was merely "a bureaucratic exercise" and reiterating the liberal interpretation given to the statute of limitations under CERCLA in favor of the government.

For more information, contact OSRE's Regional Support Division, (202) 564-4200.

Army and EPA Sign a Time-Critical Removal Action at Former Nansemond Ordnance Depot, Suffolk, VA

On December 30, 1999, the United States Army and EPA signed an interagency agreement to perform a time-critical removal action for ordnance and explosive safety hazards at the former Nansemond Ordnance Depot located in Suffolk, Virginia. Like other formerly used defense sites, Nansemond was under the jurisdiction of the Secretary of

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In-Situ Thermal Remediation Technologies

James Cummings, EPA Technology and Innovation Office

Recently developed in-situ thermal remediation technologies offer the potential to address a variety of contamination problems. These technologies can be deployed to enhance traditional remediation approaches, for example, to enhance Soil Vapor Extraction (SVE). They can also can be employed to address problems for which solutions are currently lacking, such as free product contamination at depth and/or in the saturated zone, as well as contamination sequestered in low permeability strata. In the second class of problems, thermal remediation technologies offer the potential to actually restore groundwater, in contrast to the limited containment goal of most pump and treat systems.

The principal alternative to remediating contaminated groundwater has been pump and treat. Pump and treat only addresses the component of the contamination which has dissolved in the aqueous phase. For sites with a source term of any magnitude, pump and treat will be a protracted affair, with a primary goal of containing rather than removing the mass of contamination. As an oversimplification, there has been reluctance to excavate waste much below 8-10 feet and/or to attempt to excavate waste below the water table.

In-situ thermal technologies take advantage of a number of aspects of the behavior of chemicals at elevated temperatures to accomplish contaminant recovery or in-situ destruction. These include:

- increased solubility
- decreased viscosity
- increased vapor pressure
- steam distillation
- reduced interfacial tension
- in-situ oxidation.

Methods of delivering heat to the subsurface include steam-enhanced extraction (also known as dynamic underground stripping), electrical-resistive heating, electrical-conductive heating, and radio-frequency heating.

Beyond the general class of sites with NAPL contamination, the types of facilities for which these technologies may be suitable include wood treaters, solvent sites (e.g., involving trichloroethylene (TCE)), dryclean-

In-Situ Thermal Technologies: Case Studies

Steam Enhanced Extraction

Southern California Edison (SCE), a utility company, deployed Steam Enhanced Extraction (SEE) at the Visalia, CA Pole Yard NPL site. SCE had been conducting pump and treat at the site for 20 years and had been recovering approximately 10 pounds per week. In the first six weeks of steam operation, SCE recovered 100,000 pounds of contamination. To date, SCE has recovered over 1 million pounds of creosote and pentachlorophenol. Based on radio-labelled carbon studies, SCE estimates that 15-20% of the contamination was destroyed in-situ by the process of hydrous pyrolysis oxidation (HPO).

SCE has spent approximately $20M to date. With more than 1 million pounds recovered,SCE's costs come out to approximately $20/pound. SCE estimates that pump and treat was costing $4500/pound.

In August 1999, SCE and the developers of the SEE technology received an award from EPA Region 9, the California Department of Toxic Substances Control, and EPA's Technology Innovation Office for their efforts to remediate a site with significantly impacted groundwater.

Electrical Resistive Heating

DOE conducted a demonstration project at its Savannah River facility to evaluate six-phase electrical resistive heating (SPH). SPH heats the subsuface to approximately 100° C and then recovers contaminants in centrally located wells. Over the course of the demonstration, solvent contaminant concentrations were reduced by 98% from low permeability clay strata. Since that demonstration, Current Environmental Solutions, a licensee of the DOE-developed technology, has deployed the technology at a variety of sites.

SPH was used at a site in Skokie, Ill., to address TCE hot spots located 12-14 feet below ground, sitting atop an aquitard in saturated conditions. Cleanup objectives were to meet the state Tier III industrial use standards. The client was sufficiently pleased with the performance that the vendor was instructed to continue heating in an effort to achieve the more stringent 'tier I' standards. Although tier I standards were not achieved site-wide, by the termination of the project the standards were met at the majority of the monitoring wells. Approximately 15,000 pounds of TCE were recovered.

SPH was subsequently deployed at a drycleaning site in Seattle involving "perc" (tetrachloroethylene). SPH heating achieved cleanup levels that met federal standards in less than two months of heating. Application of the technology was accomplished with no disruption of ongoing commercial activity at the strip mall where the drycleaner was located.

ers, and manufactured gas plants. (See box for examples.)

In-situ thermal technologies offer the potential to enhance existing remedial approaches and to address currently intractable DNAPL contamination problems. There is reason to hope that we are on the verge of revamping our understanding of "technical impracticability." In the next few years we expect to see continued improvement in performance and reduction in cost as the vendors of these technologies gain additional experience.

New Publications

Road Map to Understanding Innovative Technology Options for Brownfields Investigation and Cleanup, Second Edition (EPA 542-B-99-009). The new edition has been expanded significantly to include new and updated resources and is accompanied by the Tool Kit of Information Resources for Brownfields Investigation and Cleanup. The Road Map and Tool Kit link technology options to the steps involved in the characterization and cleanup of a brownfields site. [November 1999, 96 pages]. View or download at http://clu-in.org/techpubs.htm. Hard copies are available by calling (800) 490-9198 or (513) 489-8190 or faxing a request to (513) 489-8695.

Cost and Performance Reports. The DOD Environmental Security Technology Certification Program has recent posted six new remediation technology cost and performance reports. All the new reports can be viewed or downloaded from http://www.estcp.org/technical_documents.htm. The specific reports are:

- Assessment of the Remote Minefield Detection System (REMIDS)
- Joint Small Arms Range Remediation
- Multi-Sensor Towed Array Detection System (MTADS)
- Permeable Reactive Wall Remediation of Chlorinated Hydrocarbons in Groundwater
- POL Sensor Validation of SCAPS
- The Use of Constructed Wetlands to Phytoremediate Explosives-Contaminated
- Groundwater at the Milan Army Ammunition Plant, Milan, Tennessee

Directory of Technology Support Services to Brownfields Localities (EPA 542-B-99-005). This directory lists EPA offices, nongovernment organizations funded by EPA, and other federal agencies that may be able to assist in the selection of technologies to characterize and clean up brownfields properties. Also includes listings of relevant documents and Web sites [November 1999, 28 pages]. View or download at http://clu-in.org/techpubs.htm. For hard copies, contact (800) 490-9198 or (513) 489-8190 or fax a request to (513) 489-8695.

Phytoremediation, Anyone? Phytoremediation means using plants to take up pollutants in groundwater. The most often used plant is poplar or softwood trees which collect pollutants into the tree when they uptake water for the natural lifecycle of the tree. Two new resources on phytoremediation are available:

- *Phytoremediation Decision Tree.* Produced by the Interstate Technology Regulatory Cooperation (ITRC) workgroup, this document can help you decide if phytoremediation would be effective at a given site. Separate decision trees are provided for three types of contaminated media (soil, groundwater, and sediments). [November 1999, 36 pages]. View or download at http://clu-in.org/techpubs.htm.
- *Guidelines for Successful Phytoremediation.* This guidance provides information that will improve the chances for success when applying phytoremediation technology to real world sites. The report was prepared by CH2M Hill for the Center for Waste Reduction Technologies (CWRT), a non-profit arm of the American Institute of Chemical Engineers (AIChE). Several aspects of phytoremediation are covered, including evaluation of phytoremediation as a site strategy, detailed literature reviews on phytoremediation by contaminant groups, modeling phytoremediation systems, and extensive information on maintenance issues [August 1999, 200 pages]. More information is posted on the CWRT website at www.aiche.org/cwrt . The report is available on CD-ROM at cost (ISBN No: 0-8169-0806-0, Item No: Pub C-11). Contact AIChE at 1-800-242-4363 or (212) 591-7338.

Technology Status Review: In-Situ Oxidation. Published by the DoD Environmental Security Technology Certification Program, this report attempts to capture the state of the art for this very promising technology, currently in a state of rapid development. The report also indicates the types of information needed to continue the evolution of in-situ oxidation and to successfully implement the technology. The review of past projects is intended to help site managers understand the conditions under which ISO should be used and set re-

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Superfund Revises TAG Program

Simplified application procedures, no cap on administrative expenses, more flexibility in determining the length of time over which funds can be expended, and access to advance payment are all features of the proposal to revise the Superfund Technical Assistance Grant (TAG) Program. The intent of the changes is to make grants for technical assistance more readily available to local community groups and to promote effective public participation in the Superfund cleanup process. EPA proposed the changes in the Federal Register last August, and expects to finalize the revisions this spring.

EPA awards TAGs to eligible community groups affected by sites that are final on the National Priorities List (NPL) or proposed to the NPL with a response action underway. The resources a TAG provides allows communities to procure independent technical advisors to help communities understand and participate in site decision making. To date, EPA has awarded more than 220 TAGs, worth approximately $16 million.

Initial TAG grant awards are for $50,000, but under certain circumstances, TAG recipients can seek additional funding. Complex sites and prudent management of previously awarded funds are some of the typical circumstances associated with funding beyond $50,000. Because grants can be renewed with additional funding, the average value of a TAG grant is $75,000. One of the changes reflected in the new rule makes getting additional funding easier for recipients.

Other changes to the program reflect EPA's practical experience with the program in recent years as well as feedback from TAG recipients that the grants are difficult to apply for and administer once awarded. The new changes should streamline both administrative and application procedures and improve the overall flexibility of the program. For more information, contact the Office of Solid Waste, (703) 308-8895.

Technology Insights

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alistic goals for the technology. [November 1999, 50 pages]. View or download at www.estcp.org/technical_documents.htm.

For up-to-date information on publications, subscribe to TechDirect — a free monthly e-mail service that brings you capsule summaries of the latest publications and events related to site assessment and remediation technologies. A service of EPA's Technology Innovation Office, TechDirect currently reaches over 5000 subscribers in more than 45 countries.

To subscribe, go to http://clu-in.org/membersh.htm. To catch up on recently highlighted technology publications, check out the TechDirect archive at http://clu-in.org/techdrct.htm. If you have any questions, contact Jeff Heimerman at (703) 603-7191 or heimerman.jeff@epa.gov.

Nansemond

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Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances.

Originally named the Pig Point Ordnance Depot, Nansemond was acquired by the Department of the Army between 1917 and 1929. During its period of operation between 1917 and 1960, Nansemond was used for the assembly, storage, and destruction of munitions for the U.S. military. Portions of the site are now owned by the Virginia Department of Community Colleges, Dominion Lands, Inc., General Electric Company, and the Virginia Department of Transportation. A portion of the site is also being used for educational purposes by the Tidewater Community College. A 1987 Army Corps of Engineers ordnance survey and investigation of groundwater contamination indicated the presence of explosive waste, including a slab of crystalline TNT (trinitrotoluene) weighing several tons, at the site.

The December agreement is nationally significant, first, because the U.S. Army Corps of Engineers may not proceed with work when EPA disagrees with the Corps' work plans; and second, because the Army agreed to seek an appropriation to reimburse EPA's oversight costs incurred at the site in connection with the agreement. In the event that Congress fails to authorize and appropriate any funds to pay the oversight costs in FY2001, the Army is required to submit a formal request to DoD for submission to OMB as part of DoD's FY2002 budget request.

For more information, contact OSRE's Regional Support Division, (202) 564-4200, or the Region 3 Hazardous Waste Management Division, (215) 566-3000.

On the Web

Cleanup News will be gradually moving into an electronic format. Currently, we are providing e-mail notification of the availability of each issue of the newsletter; we will gradually add online synopses with the hope of decreasing the number of mailed copies. If you are interested in being part of this transition to an electronic format, please fax us the form (301-652-7001) at the bottom of this page and be sure to include your e-mail address.

Site Remediation Enforcement
www.epa.gov/oeca/osre

Features include:

- a short explanation of the enforcement of cleanups under four statutes (CERCLA, RCRA, OPA, and UST)
- links to EPA pages dealing with the cleanup and regulatory aspects of each statute
- *Cleanup News*— current issue as well as back issues of this newsletter
- electronic versions of all publicly-available CERCLA enforcement policy and guidance documents from 1983 to the present.

Brownfields
www.epa.gov/brownfields

Features include guidance and deadlines for grant applications, news and events, and the brownfields "Enviromapper" which allows you to view spatial data at the national, state, and county levels, using Geographic Information System technology (such as displaying multiple spatial layers, zooming, panning, identifying features, and displaying latitude and longitude). (From the home page, click on BF Tax Incentive Maps.)

To receive updates and press releases on brownfields activities, join the brownfields list server. Go to www.epa.gov/swerosps/bf/listserv.htm for information on how to subscribe.

Superfund Community Advisory Groups
www.epa.gov/superfund/tools/cag/index.htm

A new web site has opened for Superfund CAGs. What's a CAG? It's an advisory group made up of members of the community and designed to serve as the focal point for the exchange of information among the local community and EPA, the state regulatory agency, and other federal agencies involved in cleanup of a Superfund site. Publications, a map of CAGs by EPA region or state, and contact information are available.

Superfund
www.epa.gov/superfund

The main Superfund web site is your gateway to detailed site information; resources such as training, software, publications, and more; program information including the Superfund redevelopment initiative, oil spills, and emergency response; Superfund statistics and history, and links to regional office Superfund web sites.

How to Receive *Cleanup News*

To receive a free copy of Cleanup News, please notify SciComm, Inc., at rfrance@scicomm.com or 301-652-7001 (fax). If you would like to be notified by e-mail when the next issue of Cleanup News is available for downloading from the Web, please include your e-mail address. Cleanup News is available on the Web at www.epa.gov/oeca/osre/.

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calendar

April 9-12, 2000

Recent Advances in the Environmental Toxicology and Health Effects of PCBs

Lexington, KY

Contact Larry W. Robertson, tel: (606) 257-3952, fax: (606) 323-1059, e-mail: lwrobe01@pop.uky.edu.

April 24, 2000

Notable Achievement Awards Ceremony

Washington, D.C.

Sponsored by EPA. Contact Ann Eleanor, 703-603-7199.

June 4-7, 2000

State Fund Administrators Conf.

Scottsdale, AZ

Sponsored by EPA.Contact: Peg Rogers, 703-603-7169.

August 28 - September 1, 2000

National Community Involvement Conference

San Francisco, CA

Sponsored by EPA.Contact: Helen DuTeau, 703-603-8761.

Acronyms

ADR	Alternative Dispute Resolution
CEPPO	Chemical Emergency Preparedness and Prevention Office
CERCLA	Comprehensive Emergency Response, Compensation,and Liability Act (Superfund law)
DoD	Department of Defense
ISO	International Standards Organization
NPL	National Priorities List (Superfund)
OERR	Office of Emergency and Remedial Reponse (EPA)
OMB	Office of Management and Budget
OPA	Oil Pollution Act
OSC	On-scene Coordinator
OSRE	Office of Site Remediation Enforcement (EPA)
PCB	Polychorinated biphenyls
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act (hazardous waste)
RMP	Risk Management Plan
UST	Underground Storage Tank

cleanupnews

www.epa.gov/oeca/osre

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