

RPM News

▲ Remedial Project Manager News ▲

“COMMUNICATING NAVY INSTALLATION RESTORATION PROGRAM NEWS AND INFORMATION AMONG ALL PARTICIPANTS”

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The Last Printed Edition of RPM News



The RPM News will begin electronic delivery, rather than through regular mail, starting with our Fall 2003 issue. In the interest of time, money, and the environment, an executive decision was made to discontinue the hardcopy version of the newsletter. The electronic version will be posted on the NFESC web site and disseminated through e-mail. A link to the web site and instructions on how to access the newsletter will be provided along with the topics included in the current quarterly newsletter issue.

The information provided in the RPM News will not change from previous issues, so please continue to submit environmental newsworthy articles. The newsletter will arrive in your e-mail box as a PDF file for an easy-to-read and print format.

If your e-mail address has changed or you know someone who is currently not receiving the RPM News and would like to, please e-mail new and updated e-mail addresses to:

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RPM NEWS

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Using Appropriated Funds

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ITRC is a Great Example of “One Cleanup Program” at Work

Marianne Horinko, Assistant Administrator for the Office of Solid Waste and Emergency Response with the U.S. Environmental Protection Agency (USEPA), announced EPA's One Cleanup Program at the spring meeting of the Environmental Council of the States (ECOS) in Washington, D.C. During her speech to ECOS commissioners, she praised the Interstate Technology & Regulatory Council (ITRC) as an example of the kind of cross-agency, cross-government cooperation and coordination that the new One Cleanup Program intends to cultivate.

While the One Cleanup Program focuses on transcending narrow EPA cleanup divisions, ITRC brings together people from the entire environmental community—state regulators, Federal agency representatives, private-sector participants, and citizen stakeholder groups—to develop consensus-based technical and regulatory documents and training courses. Both ITRC and the One Cleanup Program seek to share innovative solutions across programs and Government levels to improve and expedite site cleanups.

Horinko extolled ITRC for putting this across-the-board cooperation into practice. “State-led workgroups such as ITRC have helped teams of experts develop and disseminate technical innovations. ITRC is a great example of One Cleanup at work. I encourage EPA and state officials to work with and support ITRC. And I personally want to thank ECOS for supporting the vision of ITRC and supporting the individuals in State Government who participate in ITRC.”

The ITRC Diffusion Samplers Team is a good example of how an ITRC technical team collaborates with the larger environmental community to facilitate deployment of an innovative technology. The Diffusion Samplers Team works with the U.S. Air Force (USAF), U.S. Navy (USN), EPA, U.S. Geological Survey (USGS), and private industry to compile, analyze, and disseminate information on the nationwide deployment of diffusion bag samplers. The Diffusion Samplers Team contributed to a USGS publication—User's Guide for Polyethylene-Based Passive Diffusion Bag Samplers to Obtain Volatile Organic

Compound Concentrations in Wells. The Team has also written simplified guidance for the preliminary assessment of a site's suitability for long-term groundwater monitoring using polyethylene diffusion bag samplers (PDBs) and a more extensive report that includes guidance and recommendations for using PDBs for long-term groundwater monitoring. A more comprehensive guidance document, which includes a cost model and case studies, will be completed in 2003.

The Team has developed its own web site, the ITRC Diffusion Sampler Information Center (<http://ds.itrcweb.org>), where visitors can access a current listing of deployments nationwide, keep current with news, retrieve articles from an extensive library, and post and exchange information on the development and use of diffusion samplers. Via the Internet, ITRC has educated hundreds of technical and regulatory personnel on the appropriate use of diffusion samplers. The Diffusion Samplers Team has also spread the word about diffusion samplers with a Diffusion Sampler Resource CD, containing nearly 70 articles and presentations on various diffusion samplers, as well as an ITRC training video and an Air Force Center for Environmental Excellence (AFCEE)/Parsons field sampling video. You can request copies of the CD at itrc@wpi.org.

The publicity, outreach, and education provided by the ITRC Diffusion Samplers Team over the past few years have resulted in an increased awareness, understanding,

and acceptance of this technology. Annual cost avoidance of over 50% have been documented when PDB sampling replaced conventional methods for long-term monitoring, and cost avoidance as high as 70% can be anticipated at many sites.

The Diffusion Samplers Team is one of 15 currently active ITRC technical teams that produce guidance documents and conduct training on the deployment and regulation of innovative environmental technologies. ITRC technical teams have produced more than 40 guidance documents, all of which are available online on the ITRC web site at www.itrcweb.org. Click on "Guidance Documents" and then select from the 18 topical areas in which ITRC has focused its efforts. ITRC technical teams also produce training based on their technical documents. In its five years of offering both Internet-based courses and classroom training, ITRC has reached over 15,000 participants throughout the United States and the world.

Since ITRC started offering Internet-based courses in 1999, the organization in cooperation with EPA's Technology Innovation Office has trained more than 11,000 people. These two-hour courses are a convenient way for environmental professionals across the nation and the world to receive tools and resources on their desktops. Registration information is available at www.itrcweb.org by clicking on "Internet-Based Training." Course registration opens four to six weeks prior to each course offering. These courses are delivered via the Technol-

ogy Innovation Office web site at www.clu-in.org/studio/.

ITRC will serve as a model for the One Cleanup Program as it seeks to broaden the focus of disparate EPA divisions, bring more environmental participants to the table, and enlarge the audience for innovative solutions. Through its consensus-based documents and training courses and its professional network, ITRC disseminates technical knowledge and builds a more consistent and uniform understanding of how environmental technologies should be deployed and regulated. These products and services are being used throughout the environmental community—by state regulatory agencies, Federal agencies concerned with environmental cleanup, environmental consulting firms, and technology vendors—to make quality, expedited decisions when determining the appropriateness of environmental technologies as part of effective site characterization, monitoring, and cleanup.

The ITRC Board of Directors is co-chaired by Brian C. Griffin (bcgriffin@cox.net), a senior program advisor with the Southern States Energy Board, and G. Ken Taylor (taylor@k@dhec.state.sc.us), director of the Hydrogeology Division of South Carolina's Bureau of Land and Waste Management.

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Updated Metals Bioavailability Guidance Documents

The Guide for Incorporating Bioavailability Adjustments into Human Health and Ecological Risk Assessments at U.S. Department of Defense Facilities, Parts 1 and 2 is now available. This two part guide, produced by the Tri-Service Ecological Risk Assessment Workgroup (TSERAWG), is an updated version of the Navy's June 2000 Bioavailability Guides and brings together the most current information on bioavailability of metals into a practical handbook. Although this guide focuses on bioavailability of metals, many of the basic principles described herein also can be applied to assessing bioavailability of organic compounds.

Part 1: Overview of Metals Bioavailability is a primer that explains concepts and identifies types of data that need to be collected to assess bioavailability and incorporate it into risk assessments. Part 1 of this document can be located at:

http://enviro.nfesc.navy.mil/erb/erb_a/support/wrk_grp/bio_a/bioa_guide_final1.pdf

Part 2: Technical Background Document for Assessing Metals Bioavailability provides more in-depth technical information for those professionals involved in designing and performing bioavailability studies. Part 2 of this document can be located at: http://enviro.nfesc.navy.mil/erb/erb_a/support/wrk_grp/bio_a/bioa_guide_final2.pdf

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New Sediment-Related Navy Guidance Documents

The NAVFAC Risk Assessment Workgroup (RAW) has completed several guidance documents to assist the Remedial Project Manager (RPM) and their contractor with the remediation of Installation Restoration (IR) sites. These documents include:

- Implementation Guide for Assessing and Managing Contaminated Sediments at Navy Facilities (UG-2053-ENV), Feb 2003
- Guidance for Environmental Background Analysis, Volume II: Sediments (UG-2054-ENV), April 2003
- Guide for Planning and Conducting Sediment Porewater Toxicity Identification Evaluations (TIE) to Determine Causes of Acute Toxicity at Navy Aquatic Sites (UG-2052-ENV), Mar 2003

The Implementation Guide for Assessing and Managing Contaminated Sediments at Navy Facilities identifies and discusses sediment-specific issues related to site characterization, risk assessment, and remedial alternative evaluation, and then directs the reader to related web sites and resources for more detailed technical information. This document is located at: http://enviro.nfesc.navy.mil/erb/erb_a/restoration/fcs_area/con_sed/ug-2053/ug-2053-sed.pdf.

The Guidance for Environmental Background Analysis, Volume II: Sediments is the second of a series devoted to background analysis that provides instructions for characterizing background conditions at sites where past property uses have resulted in actual or suspected chemical releases. This document is located at: http://enviro.nfesc.navy.mil/erb/erb_a/restoration/fcs_area/con_sed/ug-2054-sed-guide.pdf

Volume I: Soils (UG-2049-ENV) was released in April 2002 and focuses on background analyses of chemicals in soils. This volume focuses on analytical methods and procedures that can be used to identify background chemicals in the sediment medium (whether from anthropogenic or natural sources), and estimate the chemical concentration ranges that represent site-specific background conditions.

Volume 1: Soils is located at: http://enviro.nfesc.navy.mil/erb/erb_a/restoration/methodologies/bg_soil_guide.pdf.

The Guide for Planning and Conducting Sediment Porewater Toxicity Identification Evaluations (TIE) to Determine Causes of Acute Toxicity at Navy Aquatic Sites provides a general but comprehensive approach for planning and conducting TIEs, including standard operating procedures (SOP) and examples to illustrate many of the features of successful TIE studies to aid in characterizing and managing toxic freshwater and marine sediments. The TIE Guide can be found at: http://enviro.nfesc.navy.mil/erb/erb_a/restoration/fcs_area/con_sed/ug-2052-tie.pdf.

An introduction to the utility of the TIE is available as a complement to this guide at: http://enviro.nfesc.navy.mil/erb/erb_a/restoration/fcs_area/con_sed/sp-2132-tie.pdf.

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Latest ITRC Product Focuses on Lead-Contaminated Soils



The Interstate Technology and Regulatory Council (ITRC) has just released a document to assist owners/operators, consultants, and regulators in making decisions about the best ways to clean up soils contaminated with lead and other contaminants from small-caliber ammunition. Characterization and Remediation of Soils at Closed Small Arms Firing Ranges (SMART-1) presents a logical and easy-to-follow decision tree to assist in planning, evaluating, and approving lead soil remediation systems. The document defines site parameters and appropriate ranges of criteria necessary for characterizing, testing, designing, and monitoring lead soil remediation technologies. Among the issues explored by SMART-1 is the regulatory status of reusing soil from the backstop of a closing range on other active ranges.

At some ranges, it may be possible and desirable to reuse the soil from the backstop of a range that is being closed to construct a new berm or rebuild an existing berm located in another area of the same property or facility. It is the position of the U. S. Environmental Protection Agency (USEPA) that ranges that reclaim and recycle lead bullets or lead shot may place the soil that is generated during the reclamation process back onto an active range. The range must be on the same property or

facility or a property adjacent to and under the same ownership as the property where the soils originated without testing the soil for hazardous waste characteristics.

In addition, the SMART-1 identified several pathways for lead removal, direct disposal, and soil reuse. Depending on the characteristics of the site, there are technologies to separate, stabilize, and extract lead. In many cases, these technologies provide better solutions than simply disposing of soil as a hazardous or solid waste.

The SMART-1 is one of 15 currently active ITRC technical teams that are producing guidance documents and conducting training on the deployment of innovative environmental technologies. ITRC technical teams have produced more than 40 guidance documents, all of which are available online at the ITRC web site at www.itrcweb.org. Click on "Guidance Documents" and then "Small Arms Firing Range" to download ITRC's newest product.

ITRC is a state-led group that works to overcome regulatory barriers to the deployment of innovative environmental technologies. ITRC participants come from the ranks of state regulatory agencies, Federal agencies concerned

with environmental cleanup, environmental consulting firms, and technology vendors. These diverse ITRC participants work together in technical teams to develop documents and training to expand the knowledge base among members of the environmental community and help regulators develop a more consistent and streamlined approach for regulating innovative technologies. ITRC products also help environmental consultants improve the way innovative technologies are deployed.

The ITRC Board of Directors is co-chaired by Brian C. Griffin (bcgriffin@cox.net), a senior program advisor with the Southern States Energy Board, and G. Ken Taylor (taylorgk@dhec.state.sc.us), director of the Hydrogeology Division of South Carolina's Bureau of Land and Waste Management. The leaders of the Small Arms Firing Range Team are Dib Goswami (dgos461@ecy.wa.gov) of the Washington Department of Ecology and Bob Mueller (bob.mueller@dep.state.nj.us) of the New Jersey Department of Environmental Protection.

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Converting Contaminated Soil From A Problem Into A Useful Product

Introduction

The Naval Facilities Engineering Command (NAVFAC) is currently working with Encapco Technologies, LLC to test their patented emulsion stabilization technology at several sites for the treatment of soils impacted by heavy metals, explosive compounds, radionuclides, and other contaminants. After implementation of the Encapco process, the treated soil is ready for recycling and reuse as a valuable construction material for road base, covers, berms, or fill. Typical processing costs are \$40 to \$65 per ton and the treated material has a potential recycled value of \$10 per ton.

The objectives of NAVFAC's on-going demonstration program are to evaluate the implementability of the Encapco

soil stabilization technology, to document the cost and performance of the technology, and to obtain regulatory support for the overall treatment approach and product reuse options.

Technology Description

Encapco's stabilization method can be implemented either ex situ or in situ. This physical-chemical treatment technology for the cleanup of contaminated soil was patented in 1999 under U.S. Patent No. 5,968,245 and is licensed by Encapco Technologies, LLC. It involves mixing contaminated soil into an asphalt or tall oil pitch (TOP) emulsion that is chemically enhanced to bind and stabilize the target contaminants. A typical emulsion formulation is provided in Table 1.

Material	Volume
Tall Oil Pitch or Asphalt	50%
Non-ionic Surfactant	2%
Water	42%
Acid- Proprietary	6%

Table 1. Typical Emulsion Formulation

During the Encapco process, chelating and/or precipitating agents are added into the asphalt emulsion to promote chemical bonding of the target contaminants. As the asphalt emulsion coalesces, cures, and solidifies, the contaminants in the soil are both chemically stabilized and physically encapsulated. The overall treatment objective is to minimize contaminant leaching, while retaining the overall adhesiveness, durability, and water-resistance of the final asphalt base product.

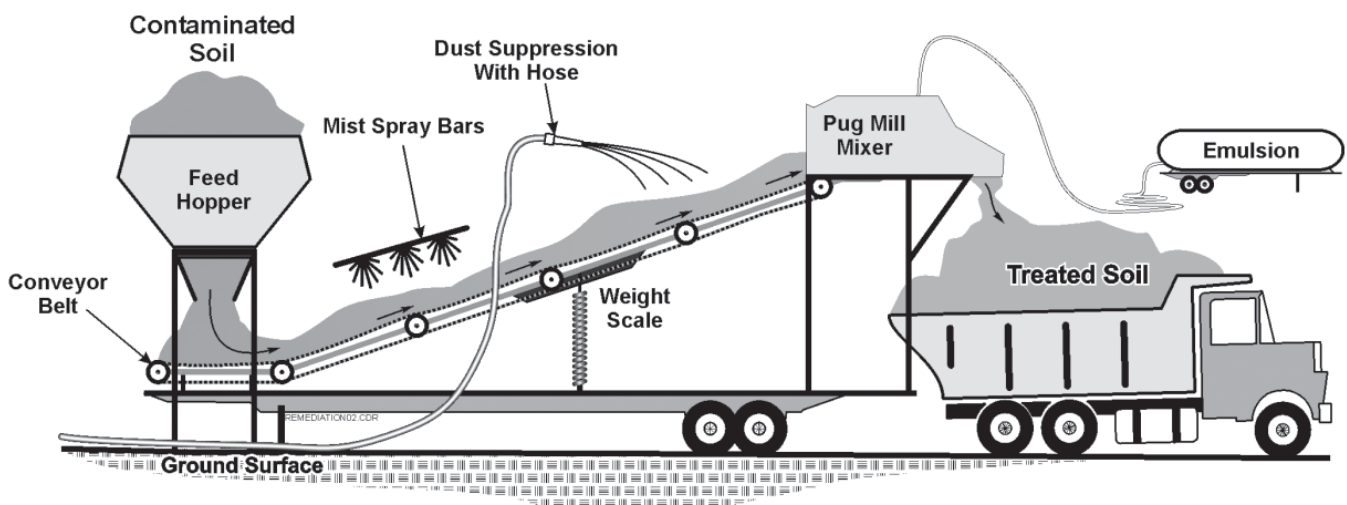


Figure 1. Schematic of Encapco treatment technology.



Figure 2. Lead ingots stacked within fenced area.

The equipment involved in the ex situ treatment process is readily available (see Figure 1). A feed hopper is used for storage of excavated soil and a tanker truck is used to hold the asphalt or TOP emulsion. A pug mill mixer is then used to blend and thoroughly mix the soil and emulsion prior to placement into a dump truck. An array of mist spray bars and hoses are used for dust control. After treatment, the final product is a stabilized and encapsulated soil that can then be used for road base, covers, berms, fill, or other purposes.

Field Demonstrations

Treatability testing of the Encapco stabilization method is underway at several sites in preparation for fieldwork to be conducted this summer.

In the past, the Encapco process has been successfully used to treat soils contaminated with heavy metals, especially lead. This will be verified at

the Naval Support Activity (NSA) in Mechanicsburg, Pennsylvania. For the past 50 years, NSA Mechanicsburg has served as a repository for 90,000 tons of lead and zinc ingots (see Figure 2). Although the storage areas were fenced, the ingots were kept in the open on bare ground. This practice left the ingots exposed to decades of weather, resulting in contamination of the surrounding soil. The ingots are scheduled for sale and removal from the site, so soil in the former storage areas must be addressed. The Navy determined that only shallow soils within the storage areas were impacted with lead and that no impact had occurred to groundwater quality. Treatability tests are in progress and fieldwork is expected to begin this summer.

The Ammunitions Burning Ground (ABG) at the Naval Surface Warfare Center (NSWC) in Crane, Indiana was selected as the demonstration site for

the treatment of explosive compounds. Several explosives were detected in site soils including HMX, RDX, TNB, TNT, 2,4-DNT, 2,6 DNT, 2A-DNT, and 4A-DNT. The soil collected for the treatability study contained lead up to 686 mg/kg and was spiked with explosive compounds at 2,000 mg/kg. Based on initial treatability results shown in Table 2, the reduction in the Toxicity Characteristics Leaching Procedure (TCLP) of RDX, TNB, and TNT ranged from 96% to 99%. Fieldwork at this site is expected to begin later in 2003.

Compound	Untreated TCLP (mg/L)	Treated TCLP (mg/L)
RDX	1.50	0.0056
TNB	0.11	0.0042
TNT	4.99	0.0034

Table 2. Initial Encapco Treatability Test Results

The Encapco process is also being tested on radionuclide contaminated sites at two Department of Defense (DOD) facilities in New Mexico and Arizona and one Department of Energy (DOE) facility in Nevada. The radionuclides targeted for treatment include plutonium (Pu), americium (Am), thorium (Th), and depleted uranium (DU). The objectives are to achieve dust and erosion control to reduce off-site migration of these radionuclides. The initial results from the treatability tests are expected later in the summer of 2003.

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Corrective Action Management Unit (CAMU) Avoids Cost, Reduces Liability, and Saves Time



Camp Pendleton area map.

Introduction

The Department of the Navy (DON) avoided costs, allowed cleanup, increased land available for use, and reduced liability when the DON designated Site 7 of Marine Corps Base (MCB) Camp Pendleton's Installation

Restoration (IR) Program a Corrective Action Management Unit (CAMU).

Facility Background

MCB Camp Pendleton was established in 1942 to provide training facilities and support for the Fleet Marine Force Units. The Base, which supports a daily population of about 60,000, occupies approximately 125,000 acres along the Pacific Ocean midway between San Diego and Los Angeles, California.

Site Background

Site 7, or Box Canyon Landfill, comprises approximately 32 acres in the southwest portion of the MCB. Site 7 was designated a CAMU in 1996 for the purpose of consolidating remediation wastes on the Base, rather than transporting them off the Base to private disposal facilities. The CAMU contains wastes generated from two non-time critical removal actions. Contamination from these sites included pesticides, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and heavy metals. Two extremely sensitive recep-

tors, a housing area and an elementary school, border the landfill.

Site 7 is now undergoing closure. An evapotranspiration (ET) landfill cover prevents water infiltration by allowing vegetation to utilize moisture instead of allowing it to percolate through to the waste. The DON completed the Site 7 cap in April 2002 with the planting of vegetation. Some peripheral work remains.

Agency Participation

A Federal Facilities Agreement (FFA) exists for MCB Camp Pendleton's IR Program. Parties to the FFA include the U.S. Environmental Protection Agency (EPA), the California Department of Toxic Substances Control (DTSC), the California Regional Water Quality Control Board (RWQCB), and the Navy and Marine Corps.

The FFA Team was intimately involved in the decision-making and planning process for Site 7 as well as the sites placed in the CAMU. Since the landfill contained no bottom liner, leachate



Site 7 CAMU in August 2000.

collection system, or gas collection system, the regulatory agencies and the DON worked together to address these crucial problems. Major issues discussed and agreed upon include: the type of cover for the landfill; the need for landfill gas monitoring; placement of landfill gas monitoring probes; location of groundwater and site geology; and protection of the nearby residents and elementary school during construction.

Community Participation

The surrounding community supports MCB Camp Pendleton. MCB is one of the largest employers in the area, and the community demonstrates intense interest and pride in the Base. The DON's Technical Review Committee (TRC), which comprises many Government agencies and community groups, meets as needed and opens meetings to the public.

The DON focused on community partnering in order to ease neighborhood concerns over activities at Box Canyon Landfill. Two public open houses were held (April 2000 and May 2001), and fact sheets were distributed in 2001. Interviews were held between June 2000 and February 2001 with various parties, including individuals from the Base, public office, education, business, and community groups. Lastly, the DON issued a new Community Relations Plan in January 2002.

As a result of community input and the

DON's concern for the sensitive receptors along the landfill, special precautions including dust control were taken during CAMU operations and cover construction. The DON placed noise and air monitors at frequent intervals along the landfill's perimeter to regularly evaluate construction impacts. Construction hours were limited to avoid disturbing the residents and school children. Additionally, gas probes were installed at frequent intervals along the landfill perimeter to measure methane levels.

Camp Pendleton CAMU Provides Cost Avoidance of More Than \$25 Million

The Site 7 CAMU allowed approximately 282,000 cubic yards of soil to be remediated, realizing over \$25 million in cost avoidance. Costs for transportation of such large volumes of soil off the Base to private disposal areas would have been extremely high and cost-prohibitive. The Environmental Restoration, Navy (ER,N) program could not fund the cleanup at the original cost. If not for the designation of the Site 7 CAMU, the six areas may not have been cleaned up at all. Conversely, utilization of the on-Base CAMU allowed for cleanup by FY02. The CAMU also



Representatives from the RWQCB (Beatrice Griffey) and DON (Kathie Beverly) at 2001 Open House.

allowed Base use of over 10 acres of land that would have otherwise been encumbered by contamination and restricted from use or development. Additionally, the designation of the on-Base CAMU decreased liability to MCB Camp Pendleton. Disposal of contaminated wastes off base would have required the use of several different Class I landfills, resulting in the Base becoming a potential responsible party (PRP) to those landfills. The CAMU within the borders of MCB remains under Government control, and MCB avoids bearing the liability of paying for cleanup of several different private landfills.

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Site 7 CAMU in January 2002.

The 2003 Cleanup Conference Was The Best Ever!!



The opening session was packed with attendees.

These were the sentiments expressed by many of the conference attendees. The annual Navy and Marine Corps (N&MC) Cleanup Conference was held in Oxnard, California on 11-13 February 2003. The NAVFAC-sponsored conference provides an opportunity for those involved in environmental cleanup programs to share information and successes. During the "Washington Perspective" session, representatives from Assistant Secretary of the Navy (ASN), Chief of Naval Operations (CNO), Office of the General Counsel (OGC), and Naval Facilities Engineering Command Headquarters (NAVFAC HQ) provide an update on the overall status of our cleanup program, the latest issues and policies, and address questions. The NAVFAC Work Groups gave updates on their progress.

Over 65 technical presentations on actual cleanup projects involving innovative technologies, contaminated sediments, GIS, contracting, risk assessment, legal issues, site closeout processes, and the new Munitions Response Program were attended by 224 N&MC environmental professionals. Training sessions for project managers were offered on Monitored Natural Attenuation, Risk Communication,

Munitions Safety, and the new Munitions Response Program Prioritization Model.

For conference attendees, the value-added benefits of participating include the networking, sharing lessons learned, learning about technology transfer opportunities, and discussing the latest issues and problems with other N&MC project managers from around the country.

The 2003 Environmental Restoration Awards (the "Drummies") were presented to the winners by Dave Olson of CNO. And the winners are:

Atlantic Division
Pacific Division
Southern Division
Southwest Division
Northeast Activity
Chesapeake Activity
Northwest Activity
West Activity
Naval Facilities Engineering Service Center

Ed Corl
Cowan Azuma
Art Conrad
Content Arnold
Mark Leipert
Neal Parker
Patricia Kelly
Juris Sinats
Bryan Harre



Environmental Restoration Award (Drummie) winners from left to right: Art Conrad, SOUTH; Patricia Kelly, NW; Bryan Harre, NFESC; Mark Leipert, NORTH; Neal Parker, CHES; and Juris Sinats, WEST.



Brian Harrison, Installation Restoration Program Manager, NAVFAC HQ, shares his enthusiasm with the conference attendees.



Sid Allison, Director, Environmental Programs, NAVFAC HQ, opens the conference.



Jerry Kohns, Environmental Legal Counsel, NAVFAC HQ, updates attendees on the latest legal issues impacting cleanups.



Dave Olson, CNO, presents some of the Washington Perspective on the Installation Restoration Program.



Paul Yaroshak, ASN, discusses policy issues for the Navy's restoration activities.

Early Transfer Facilitates Successful Redevelopment of Navy Property

NTC Orlando

SITE/LOCATON

Naval Training Center
Orlando, Florida

SITE DESCRIPTION

Four separate properties totaling 2,060 acres within the city limits of Orlando. The Main Base property was known as the Orlando Air Force Base from 1947 until 1968 when it was acquired by the Navy. Before closure and the subsequent demolition of most buildings and structures, the Main Base was comprised of classrooms, dormitories, offices and recreational facilities.

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LEGAL DRIVER

CERCLA 120(h)(3)(C)

DECISION DOCUMENT

Finding of Suitability for Early Transfer

Project Summary

The former Naval Training Center (NTC) Orlando was closed in April 1999 and is in the process of being transferred to the public via the Department of Defense (DOD) Base Realignment and Closure (BRAC) process. Before mid-1996, cleanup actions had to be completed or remediation systems operating successfully before Federal property could be transferred to the public for reuse via a standard or "clean" transfer. In June 1996, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) was amended to allow deferral of this requirement and "early transfer" of the property before the required cleanup actions had been completed. DOD guidance was issued in April 1998 that allowed the Navy and local communi-

ties to take advantage of early transfer authority. In such cases, the Navy has to make certain assurances and put interim land use controls in place to protect human health and the environment during the ongoing cleanup.

Approximately 90 percent of the original 2,060 acres of real property comprising NTC Orlando has been transferred, primarily to the City of Orlando for the purpose of community redevelopment. Response activities to address past releases of hazardous substances remain to be completed on portions of NTC Orlando before the remaining 207 acres of property are considered suitable for a "clean" transfer. The City's developer has made significant progress in redeveloping the NTC Orlando Main Base into the community of Baldwin Park. The continued success

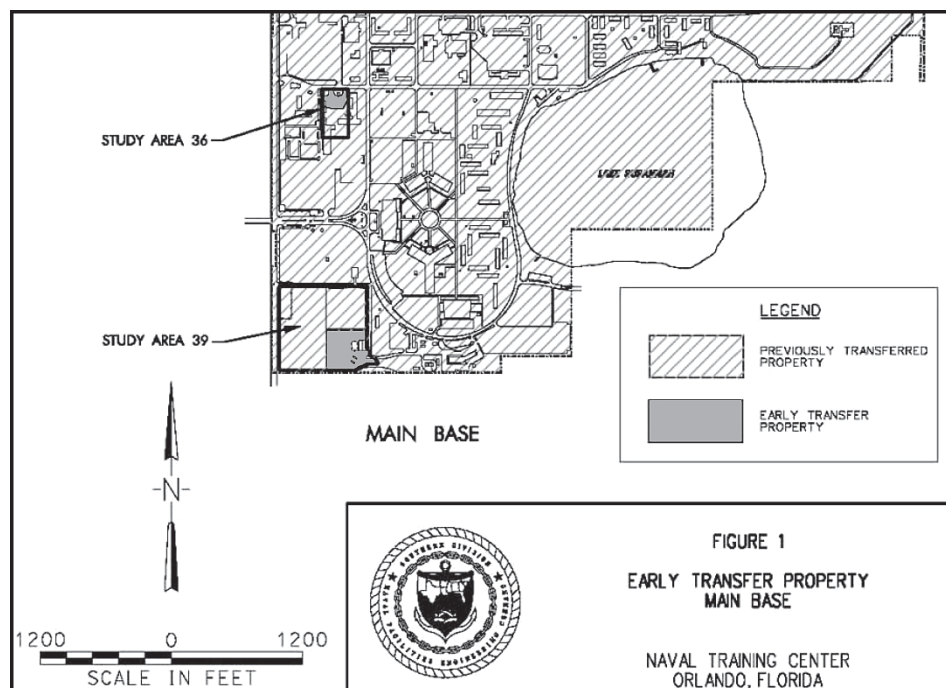


Figure 1. Early transfer property (SA 36 and SA 39).

of the redevelopment was jeopardized by finding that two pieces of the property were not suitable for transfer due to groundwater contamination. These parcels were designated as Study Areas (SAs) 36 and 39 (SA 36 and SA 39). While small (3.42 acres total), SA 36 and SA 39 (refer to Figure 1) were in critical locations and threatened the developer's ability to secure the financing needed to complete the project. Therefore, in a letter dated 14 October 2002, the City requested that the Navy expedite the transfer of all remaining property, and these two parcels in particular, using early transfer authority. While a typical early transfer might take 6 to 12 months, the City needed to take ownership of the two parcels before Christmas in order to meet the developer's needs – a very short timeframe complicated by the requirement for a 30-day public comment period and a deadline two days before Christmas.

The Navy quickly prepared and distributed a draft *Finding of Suitability for Early Transfer (FOSET)* to the members of the Orlando Partnering Team (OPT) prior to the regularly scheduled team meeting held on 28 October 2002, where a "hands-on" review of the FOSET was completed. Between that meeting and 8 November 2002, the Florida Department of Environmental Protection (FDEP), the Navy, and the City/Developer worked continuously via fax, e-mail and teleconferences to produce a FOSET for public review and comment. This process was repeated during the public comment period to resolve issues and prepare the transfer deeds, as well as a *Finding of Suitability for Transfer (FOST)* for non-CERCLA environmental issues and an *Environmental Baseline Survey for Transfer (EBST)*. The final FOSET was sent up the Navy chain-of-command on 12 December 2002 and forwarded to Governor Bush who signed the approval letter on 23 December 2002. Prepara-

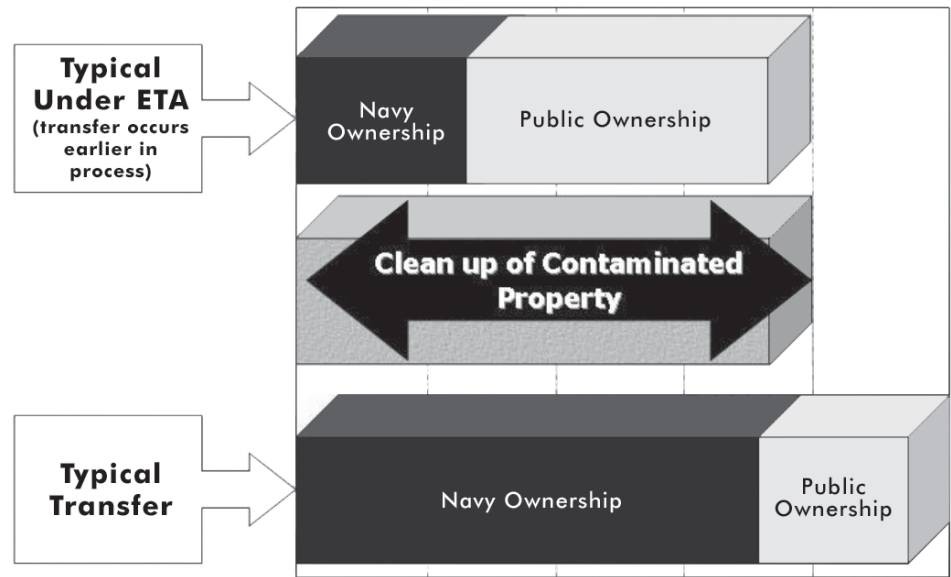


Figure 2. Early transfer saves time.

tion of early transfer documents for all of the remaining NTC Orlando property is underway with completion expected by September 2003.

Regulatory Requirements/Community Involvement

Section 120(h)(3)(C) of CERCLA authorizes early transfers conditioned upon State Governor approval for sites such as NTC Orlando that are not on the National Priorities List (NPL). Thus, close coordination with the FDEP representative on the OPT was crucial to securing the Governor's approval of the FOSET. Without the timely reviews of the early transfer documents provided by the FDEP representative and legal counsel, the compressed early transfer schedule would not have been achieved.

Construction Challenges

The early transfer process had to be completed within a 10-week period, instead of the more typical 6 to 12 months, so the Navy tasked its Early Transfer Hub with preparing the transfer documents. The Early Transfer Hub is an extension of Naval Facilities Engineering Command Headquarters (NAVFAC HQ) and consists of dedi-

cated NAVFAC Southern Division (SOUTHDIV) and Tetra Tech NUS, Inc. (TtNUS) staff focusing on support and continual improvement of the early transfer process for multiple facilities Navy-wide. The Early Transfer Hub personnel were experienced in preparing early transfer documents and available to dedicate 100 percent of their time to the early transfer at NTC Orlando.

Early feedback from FDEP and the City/Developer on the initial draft FOSET allowed the Early Transfer Hub to quickly produce a draft suitable for public review and comment. The Navy, FDEP and the City/Developer conducted ongoing discussion and negotiation during the public comment periods for the FOSET and FOST/EBST, allowing the final documents to be produced quickly. In addition, the City/Developer coordinated early and often with the Governor's office to ensure the FOSET would be signed immediately.

The efforts of the Early Transfer Hub significantly reduced the time required to transfer the property from Navy ownership to public ownership (see Figure 2).

Cost Avoidance Measures

The accelerated schedule resulted in an overall cost avoidance of approximately 25 to 50 percent when compared to normal early transfer cost.

Project Successes

Without the concerted efforts and cooperation of the Governor's office, FDEP, U. S. Environmental Protection Agency (USEPA), and the City and its developer, the Navy could not possibly have moved the FOSET through the regulatory and public review process, then on to NAVFAC and the Deputy Assistant Secretary of the Navy, and finally to the Governor's desk for signature in such a short time. Meeting such an aggressive schedule would not have been attempted if not for the mutual trust and teamwork the OPT has developed over the years. The early transfer of the two key parcels represented:

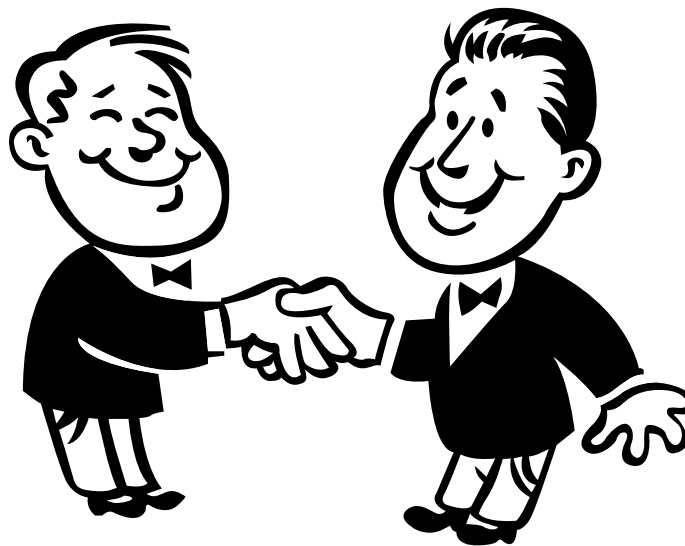
- The shortest duration for any early transfer by any DOD component.
- The fastest early transfer within the Navy.
- The first early transfer of DOD property in the State of Florida.

Lessons Learned

The successful early transfer of property at NTC Orlando under such a compressed schedule is attributable to:

- Early and frequent communication between all parties.
- Effective coordination up the chain-of-command within each organization.
- Mutual trust and respect developed through long-term partnering between FDEP, USEPA and the Navy.
- Well-defined nature and extent of contamination, risk, and planned reuse.
- Motivated transferee (City).
- Hub personnel with early transfer experience available to support the OPT.

NNSY and AWII Enter Into a Landmark Joint Resolution to Address Co-Mingled Contamination



A groundbreaking ceremony on 18 March marked an innovative partnership where the Federal Government and private industry are working together to clean up a co-mingled Superfund site.

After arguing for years about contamination on the adjoining properties along the Southern Branch of the Elizabeth River in Portsmouth, Virginia, which belong to the Norfolk Naval Shipyard (NNSY) and Atlantic Wood Industries, Inc. (AWII), the Navy, state and Federal regulators, and a private company entered into a landmark Joint Resolution to address co-mingled contamination. Both sites have been designated under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) as Superfund sites.

Issues at the sites include calcium hydroxide, abrasive blast material (ABM), metals, polycyclic aromatic hydrocarbons (PAHs), treated wood

wastes, and inert construction debris, all by-products of shipyard operations and AWII's former wood treatment operations.

About 18 months ago, the Navy and Atlantic Wood representatives sat down, decided to stop arguing and see what could be accomplished if they worked together.

NNSY and AWII, along with the Naval Facilities Engineering Command Atlantic Division (LANTDIV), Navy Region Mid-Atlantic, the Environmental Protection Agency (EPA), and the Virginia Department of Environmental Quality (VDEQ) were active participants in the planning for the action and will be providing oversight on the work at the site. The NNSY Restoration Advisory Board (RAB), the Virginia Institute of Marine Sciences, and the private Elizabeth River Project also participated. CH2M Hill did the site assessment under a Navy Comprehen-

sive Long-Term Environmental Action Navy (CLEAN) contract and Shaw Remediation and Infrastructure will clean up both sites.

Mike Host, of the NNSY Environmental Division, says "I see this as a breakthrough project, the benefits of which will extend far beyond the boundaries of this site. The relationship forged between its partners will be a foundation for success in future projects not yet started. It will demonstrate in a very real way what people and organizations, working together, can accomplish. That's the real power of a project like this - its potential to inspire others to take on new challenges, and achieve new successes that exceed anything we currently dare to expect."

"Representatives from various organizations, with different missions, but with the same objective, developed a workable solution to this long-standing problems at this site," said Rear Adm. Michael Loose, LANTDIV Commander. "The fact that we're here today says a lot about the partnership and cooperation that has developed as this team worked through some very complex issues."

"This agreement resulted in several 'firsts,'" Rear Adm. Loose continued. "This was the first time we have developed an integrated solution to addresses commingled contamination at a combined Federal and commercial site. This was the first time project settlement funds were provided by the Department of Justice up front rather than after the fact litigation. And this was the first time we have used a single contractor when there were multiple funding sources and responsible parties."

"Thanks to this innovative agreement between EPA, the U.S. Navy and AWIII, significant amounts of contamination from two Superfund sites will no longer threaten the Elizabeth River. This is an excellent example of the Superfund law's flexibility, and EPA applauds our partners for their cooperation in reaching a sound solution to a complex environmental problem," said EPA Regional Administrator Donald S. Welsh.

VDEQ Project Manager, Devlin Harris stated "This has been an incredibly challenging project that could not have been done without the collaborative effort and innovative thinking by all the stakeholders and, yes, even some risk taking."

"It is very rewarding to see site remediation of two adjoining Superfund sites and the creation of a tidal wetlands where waste once was. The Navy, AWII, EPA, and VDEQ worked together as a team to conceptualize the end goal, then aggressively sought to overcome the many unique challenges, both technical and legal, to accomplish that goal," said Tim Reisch, LANTDIV Remedial Project Manager (RPM).

Rear Adm. David Architzel, Commander Navy Region Mid-Atlantic stated, "As Department of Defense (DOD) executive lead agent for the Chesapeake Bay Program, I am proud of the local watershed initiatives our installations participate in that support restoration and preservation of the Bay's living resources, vital habitat and overall water quality. The incorporation of an engineered tidal wetland into the final remedy for this site supports both the local Elizabeth River Watershed Action Plan and the regional Chesapeake 2000

goals - this project truly fits the category of Government by example. These participating commands and agencies are to be commended for forging an innovative partnership that provides long-term benefits to both industry and the environment."

"This project is another example of the commitment shown by the Navy and our neighbors here along the Elizabeth River to work together and restore our environment. Teamwork prevails again!" Captain Mark Hugel, NNSY Shipyard Commander concluded.

The abrasive blast material disposal area will be capped and an engineered wetlands will be created in the areas of the calcium hydroxide sludge excavation. The wetlands grasses will be planted before mid-June to optimize the growing season. The cap area is located west of where the engineered tidal wetland will be. The contractor will cap this area with an EPA-approved impermeable layer to prevent surface water infiltration and promote good drainage. The cap area will be constructed after the engineered wetlands are planted. Construction of the cap will begin in late 2003 and will be completed in early 2004.

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Allegany Ballistics Laboratory's (ABL's) Installation Restoration Program



Restoration Advisory Board members meet to discuss environmental cleanup at ABL.

Since 1983 the U.S. Navy has been cleaning up soil and groundwater at the Allegany Ballistics Laboratory (ABL) in West Virginia across the Potomac River from Cumberland, Maryland. While the work has gone largely unnoticed, it has been highly successful.

ABL Plant 1 is a 1,577-acre facility that has been used primarily for development and production of solid propellants and motors for ammunition, rockets, and armaments for the U.S. armed forces since 1943. The facility is owned by the Naval Sea Systems Command (NAVSEA) and operated by Alliant Tech Systems (ATK).

Since the inception of research and development activities at ABL, a variety of explosive and solvent wastes have been generated which, until 1978, were disposed of primarily in onsite disposal areas. These past disposal practices were consistent with industry standards and regulations; however, contamination has

occurred at the site. The main environmental concern related to past operations at ABL is caused by solvents, production materials and their by-products in the soil and groundwater.

The environmental work under the Installation Restoration Program (IRP) is managed by the Naval Facilities Engineering Command's Atlantic Division (LANTDIV) in Norfolk. Environmental regulation of current waste management activities is regulated by the U. S. Environmental Protection Agency (USEPA) and the West Virginia Department of Environmental Protection (WVDEP) through the Resource Conservation and Recovery Act (RCRA).

A Navy survey completed in 1983 identified nine sites, seven of which were recommended for further evaluation. Of those, contents of one former landfill have been excavated and the landfill closed. Another landfill has been

capped and groundwater at the site is being studied. One contaminated production well has been cleaned and closed. Investigations are continuing and other sites have been identified over the years, including a former solvent disposal sump, a previously identified Area of Concern (AOC), which became Site 12 on 30 April 2003.

"Nine sites, or areas of contamination, are presently being investigated or remediated at ABL by the Navy," explained Dominic O'Connor, LANTIV's remedial project manager (RPM). "A study has been performed that establishes background levels for cleanup of these sites. Human health and ecological risk assessments are presently being developed with assistance from the WVDEP and the U.S. EPA. Remediation of the remaining sites is expected to begin in 2004."

Groundwater at ABL is contaminated with chlorinated solvents, primarily trichloroethylene (TCE) from unlined earthen pits previously used for solvent disposal. TCE is a solvent used to clean up residue from the manufacturing process. The alluvial and bedrock aquifer plumes of these volatile organic compounds (VOCs) are each about 12 acres in size. In September 1998 a \$5 million treatment plant began operation to extract and treat groundwater from two sites, #1 and #10. The plant treats about 80 million gallons per year. During the winter, 90 percent of the discharge is used as boiler feed water at the plant. During other times treated water is discharged to the Potomac River.

In May 1994, the EPA placed the Plant 1 portion of ABL on the National Priorities List (NPL) and a Federal Facility Agreement (FFA) was signed in

January 1998. The five-year review of the Records of Decision (ROD) will be completed by July 2003. Through FY02, \$20.8 million has been spent at ABL.

Community involvement with the environmental clean up at ABL is through a Restoration Advisory Board (RAB) which meets every three to four months. The RAB is jointly chaired by NAVSEA representative, Lou Williams, and a public representative, Dr. Betsy Kagey, of Cumberland, Maryland. The RAB includes several representatives from the local community, USEPA, WVDEP, and the Navy. A Technical Review Committee (TRC) was formed in 1989 and it was chartered as a RAB in December 1994.

“As Co-chair of the RAB, I have found that the cleanup process is continuing on schedule and the information provided to the members of the RAB provides us with details of the current environmental assessments of the area and of the current and future cleanup processes,” Dr. Kagey said. “One of the most important features of the RAB meetings is the education of our members to how the cleanup decision-making process works.”

Dr. Kagey is an Adjunct Professor at nearby Frostburg (Maryland) State University, teaching Environmental Law, Environmental Health, Human Biology and the Environment and Research Methods. Her research and teaching focus are on environmental epidemiology, risk assessment, risk communication, and risk management. Her involvement has helped local RAB members understand the technical information provided.

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Site descriptions and cleanup actions, performed and planned are as follows:

Site 1, riverside disposal area, is an 11-acre area consisting of several disposal units, including a current burning ground for ordnance, three inactive disposal pits for spent solvents and acids, a former drum storage area for drums containing hazardous wastes, a former landfill for ash, and two former burning areas for inert substances. With the exception of the ordnance burning ground, these disposal units are no longer in operation. The three disposal pits have been backfilled, all drums have been removed from the drum storage area, and both the ash landfill and the former burning areas are overgrown with vegetation. Groundwater is being remediated by a treatment facility to remove TCE and other (VOCs) from the extracted groundwater. The treatment plant and about 34 extraction wells began continuous operation in September 1998. Human Health and Ecological Risk assessments are being performed for Site 1 soils and when complete will identify soils that should be remediated for site restoration.

Sites 2 and 3 were ordnance burning grounds operated in the 1940s and 1950s. Human Health and Ecological Risk assessments are being performed for the sites and when complete will identify whether remedial action (RA) is necessary.

Site 4B was a photo lab area which drained spent photographic solutions (silver compounds) into a grassy area. A soil removal action is now scheduled for completion in August 2003.

Site 5 was an old landfill operated from the early 1960s to 1985, accepting wastes generated by ABL and deemed to be inert. In 1997, soil contamination was addressed by construction of a landfill cap. Human Health and Ecological Risk assessments are being performed for the site's groundwater, surface water and sediment and when complete will identify whether RA is necessary.

Site 6 was an explosive test area and was investigated and closed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program in February 2002.

Site 7 was a small (10 feet by 15 feet by 6 feet deep) earthen pit, which was used intermittently in the 1960s to dispose of beryllium-contaminated waste. In 1994, the material from Site 7 was removed to an off-site commercial hazardous waste landfill, thereby completing the site's restoration.

Sites 8 and 9 were solid waste management units (SWMUs) that were evaluated and closed under CERCLA.

Site 10 is an area in which a TCE solvent recovery still operated and is believed to be the source of groundwater contamination in several facility wells. Groundwater from this site has been pumped and treated at the Site 1 treatment plant since 1999. Subsequent computer modeling has identified a more optimum well arrangement, thereby ensuring a more comprehensive groundwater remediation.

Site 11 is in the area of the old boiler house, fuel oil storage area, and a deep bedrock production well, which was never placed in operation due to sand flowing into the well through fractures in the bedrock. However, this well was never properly abandoned. Investigation of groundwater, sampling and re-boring of the well during September-October 1999 removed the source of contamination.

Investigation of groundwater and soil in the area around Building 167 has discovered significant contaminant levels. The area was previously used for waste storage, metal degreasing and plating operations with some wastewater discharged to a sump which has since been removed. A remedial investigation (RI) is presently underway for this area, now identified as **Site 12**.

Tree Cores Used to Map Shallow Groundwater Plumes

A quick and easy reconnaissance tool deployed at the Naval Weapons Station (NWS), Charleston has allowed for the mapping of several plumes of groundwater contaminated with chlorinated hydrocarbons. The technique involves the collection of tree cores and subsequent analysis of the vapor released from them. A map of the trees with the chlorinated ethenes was developed that allowed the project team to more cost effectively and precisely define the nature and extent of contamination in the lowland forests.

This low cost approach to site characterization involves the uptake of contaminated groundwater by tree roots. Water extracted from the ground by the trees roots moves up the trunk of the tree as a result of transpiration processes. A core collected from the trunk of the tree using an increment borer contains water in the xylem, the principal water-conducting tissue of vascular plants. The approximately 2-inch section of recovered tree core was then placed into a 20-milliliter (mL) glass vial. A Teflon-coated septum cap was crimped onto the vial. The volatile organics (e.g., TCE) were allowed to equilibrate (degas) with the headspace of the vial for 24 hours. Afterward, a gas-tight syringe was used to withdraw 100 microliters (uL) of vapor for analysis on a gas chromatograph using a photoionization detector. The hole in the tree created from the coring was filled with a cylindrical wooden peg that was hammered into the trunk to prevent insect infestation and potential pathogenic environments that would harm the tree. After sample analysis, the tree coordinates were obtained through either global positioning system or traditional surveying. Maps of the analytical results of the tree cores provided the basis for a more efficient subsurface investigation by identifying the general location, orientation, and extent of the plumes.

At Solid Waste Management Unit (SWMU) 12, a release of chlorinated solvents from an underground storage tank (UST) contaminated a shallow aquifer. The contaminated groundwater located approximately 10 feet

below ground surface moved into a lowland forest 100 feet down gradient. The forest was dominated by loblolly pines but also contained a mixture of tallow, live oak and willow trees, all types of which were cored. The soil overlying the more permeable zone of groundwater contamination consisted of tight clay. The piezometric head at the site was approximately 3 feet below land surface. Movement of contaminants into this clay and subsequently the roots are suspected to be the result of matrix diffusion and an upward wicking of water from the transpirative forces associated with the trees.

Collection of tree cores distributed throughout the site allowed for identification of potential locations of contaminated groundwater without unnecessarily cutting down trees to use conventional intrusive sampling approaches such as direct push technology and monitoring wells until they could be more precisely located. The map in Figure 1 shows tree cores collected at SWMU 12. The contamination follows a banana shape that was later confirmed with groundwater samples using direct push technology.

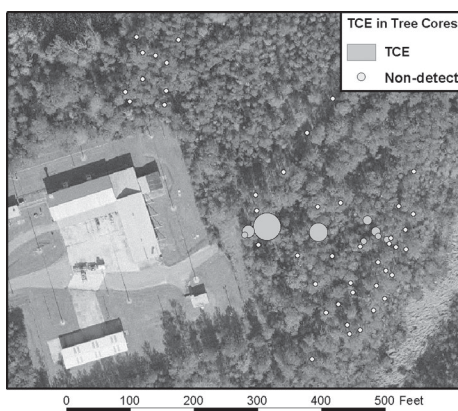


Figure 1. Aerial view of tree cores collected at SWMU 12.

Figure 2 shows tree cores at SWMU17 also located at the NWS Charleston. This site was reported to be an old Waste Missile Parts Disposal Site. In this map, two distinct plumes are apparent. One containing a PCE

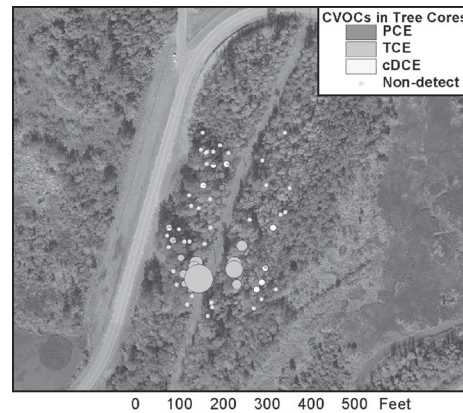


Figure 2. Aerial view of tree cores collected at SWMU 17.

plume and the other a TCE plume. Sixty-seven tree cores were collected in one day at this site and analyzed the following two days to provide a quick survey of the location and degree of contamination. This allowed the project team to more accurately focus the follow-up groundwater investigation with a sampling grid that provides greater precision in targeting the zone of contamination.

Deployment of this tool appears to have the most promise for sites in which contamination consists of volatiles and is located in a shallow groundwater environment with a population of trees sufficient to map the plume. Many of the Navy's sites contain old landfills and or disposal areas that have since grown over with trees. Tree cores may be a useful first reconnaissance tool at these sites.

The United States Geological Survey (USGS) in Columbia, South Carolina and the Southern Division (SOUTHDIV), Naval Facilities Engineering Command (NAVFAC) conducted this work.

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Technology Transfer (T2) News

T2 Web Site Address:

http://enviro.nfesc.navy.mil/erb/restoration/technologies/tech_transfer/main.htm



Enhanced T2 Training Tools Available for 2003

Naval Facilities Engineering Command (NAFVAC) has recently developed a series of web-streaming multimedia tools to enhance the exchange of T2 information. These new tools include animated graphics, video, audio, electronic pictures, as well as text and web links. The objective of these tools is to improve information retention and accommodate individual learning characteristics by disseminating information using pictures, video, sound, and text formats. The Polychlorinated Biphenyl (PCB) Training Tool is the first of these new tools to be released. It provides the user with detailed information about PCB history, nomenclature, structure, environmental fate and transport, and PCB laboratory analyses. The main objective of the PCB Training Tool is to provide Remedial Project Managers (RPMs) with the information needed to select the most appropriate and cost effective PCB analysis for their site. You can view the PCB Training Tool at the following location: www.ert2.org. Some of the future topics for NAFVAC's web-based T2

tools include the following: Permeable Reactive Barriers, In Situ Reactive Zones, Encapco Stabilization of Soil, Amphibian Risk Assessment, and Biodegradation of Dense Non-Aqueous Phase Liquid (DNAPL) through Bioaugmentation. These tools and more will be released throughout FY03. Look for the announcements regarding their release on the www.ert2.org web site. Note to NMCI Users: the web site provides additional instructions for running these tools on your computer.

Guidance Manual for Assessing Risk to Amphibians

Under the Y0817 program, NAVFAC conducted extensive research to develop a sound approach for sediment toxicity testing for amphibians. The goal of the project was to help the Navy avoid costly and unnecessary wetland alteration based on the use of inappropriate ecological endpoints. Amphibians play a key ecological role serving both as important consumers and predators in wetlands. However, limited amphibian

ecotoxicity data are available. It is likely that amphibians may be a more appropriate indicator species than those currently being utilized to make wetland risk management decisions. Amphibians are more appropriate because they inhabit wetland sites, taking away the need for conservative uncertainty factors used to make adjustments for other species. As a result of this research, a guidance manual for assessing risk to amphibians is scheduled for release. In addition, the T2 program will promote this risk assessment guidance manual by developing a companion interactive web-based training tool. Look for future announcements of the Amphibian Risk Assessment Training Tool on the www.ert2.org web site.

Act Now to Get Technical Support Under the New Rapid Response Task Order!

Naval Facilities Engineering Service Center (NFESC) sponsors a Rapid Response Task Order under the Environmental Technology Implementation Contract

(ETIC) to provide technical support to RPMs. Under this task order, funds are available for RPMs to access additional technical expertise needed to support their projects. The technical support efforts can include a wide variety of activities such as technical review of reports, data, sampling strategies, and work plans; remedial technology selection and system design; attendance of experts at meetings with regulators or the public; developing technical presentations; participating in site visits; collecting soil or groundwater samples and performing chemical analyses; preparing technical data sheets and issue papers; and conducting project follow-up activities.

For more ETIC information, contact:

*NFESC
(805) 982-2636
or your Technical Support Representative (TSR)*

For more T2 information, contact:

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