

# RPM News

## ▲ Remedial Project Manager News ▲

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

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## Dye Analytical Method Development NSWC Crane, Indiana



*Instrumentation used at the NSWC Crane Explosives Sciences Laboratory.*

New laboratory methods have been developed for analyzing military dyes in soil, sediment, groundwater, and surface water. Naval Surface Warfare Center (NSWC) Crane in Crane, Indiana, with support from Southern Division (SOUTHDIV) and SOUTHDIV contractor, Tetra Tech NUS, Inc. (TtNUS), is currently investigating several Solid Waste Management Units (SWMUs) within the nearly 100 square mile facility. NSWC Crane is located in Region 5 of the U. S. Environmental Protection Agency (U. S. EPA) 10-region system. One of the sites being investigated is the Dye Burial Ground (DBG), SWMU 2, which is an area where tons of many different military dyes were deposited in open trenches between 1952 and 1964.

An interim measures cap was installed over the DBG to stabilize site contaminants. Of interest was whether the cap would serve as the final remedial measure to prevent contaminant migration. To determine this, dyes would have to be identified and their concentrations quantified in both aqueous and solid environmental media at the DBG. Yet, there were no U.S. EPA-approved analytical methods that were capable of analyzing the variety of dyes potentially present. The dyes ranged in chemical characteristics from acidic to basic and they exhibited a range of spectroscopic characteristics. This meant that new analytical methods needed to be developed. The new methods should have broad applicability in order to detect dye compounds

Spring

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*"Dye Analytical Method Development"*  
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from several different chemical families in various environmental media. Furthermore, it was necessary that the analytical data be of sufficient quality to support a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) risk assessment and a Corrective Measures Study (CMS).

Because of their previous experience in dye analyses at NSWC Crane, the NSWC Crane Explosives Sciences Laboratory (ESL) was poised to develop the necessary analytical methods. The laboratory combined efforts with the NSWC Crane environmental office, SOUTHDIV, and TtNUS. All stakeholders maintained communication throughout the project to ensure that the development effort progressed smoothly.

Development began with document searches to gather as much information as possible about the dyes that were buried at the DBG. Numerous literature sources were also investigated to collect as much information as possible concerning dye analytical methods. Candidate analytical techniques were reviewed and the list of potentially successful techniques was reduced to the most promising candidates.

The NSWC Crane ESL then began the laboratory phase of the method development. The guidance promulgated in "Guidance for Methods Development and Method Validation for the RCRA Program" (<http://www.epa.gov/epaoswer/hazwaste/test/>

[methdev.htm](#)) was used to guide this effort. Various experimental conditions were balanced to determine the best analytical performance with the shortest analytical run time. Laboratory trials were followed by field trials involving actual environmental media from the DBG. After several refinements, the analytical methods were fully validated for use on samples of the solid and aqueous environmental media of the DBG.

A detailed method validation report was submitted to U.S. EPA Region 5. U.S. EPA Region 5 approved the methods and the methods have been used successfully to identify and quantify military dyes in soil, sediment, surface water, and groundwater samples collected from the DBG. The resulting data were used to support decision making for the RFI report that is in preparation.

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# Technology Transfer (T2) News



## T2 Web Site Address:

[http://enviro.nfesc.navy.millerberb\\_a/restoration/technologies/tech\\_transfer/index.htm](http://enviro.nfesc.navy.millerberb_a/restoration/technologies/tech_transfer/index.htm)

## SEAR Design Manual Now Available

The *Surfactant Enhanced Aquifer Remediation (SEAR) Design Manual* is now available to download from the Environmental Restoration and BRAC, T2 Web Site (see address above). The SEAR Design Manual provides background information and specific guidance for technical personnel who would like to evaluate and apply in situ surfactant flooding at sites contaminated with nonaqueous-phase liquid (NAPL). SEAR is a source zone remediation technology that may be used as an enhancement to conventional pump-and-treat systems, which are often inefficient for recovering residual NAPL contamination. Removal of NAPL by pump and treat is limited by the dissolution of free phase contamination into the groundwater. Many NAPLs have low aqueous solubilities; therefore, mass removal into the dissolved phase is slow. SEAR was developed as a method to increase the solubility and mobility of NAPL and enhance the removal rate achievable with pumped groundwater.

## Management of Secondary Treatment Trains

In conjunction with the Management of Secondary Treatment Trains Remediation Innovative Technology Seminar (RITS) (October 2001), the Naval Facilities Engineering Service Center (NFESC) has developed a web application called the Ex Situ Groundwater Treatment Technology Evaluation Tool as well as a Tech Data Sheet (both are available at the T2 Web Site). The web application and data sheet have been designed to assist in evaluating aboveground groundwater treatment technologies, including air stripping, granular activated carbon, advanced oxidation processes, and biological treatment. Features of the web application include treatment technology write-ups and schematic diagrams, cost range information, vendor information, and a wizard that will help identify appropriate treatment trains based on site-specific input.



## New Five-Year Review Policy Document Available

As highlighted in the Fall 2001 RITS and the 2002 Cleanup Conference, the Navy recently released the final Five-Year Review Policy (available at the T2 Web Site). The Navy policy document establishes procedures for conducting five-year reviews, facilitates consistency of five-year reviews across the Navy/Marine Corps, clarifies current policy, and delineates roles and responsibilities of various entities in conducting or supporting five-year reviews.

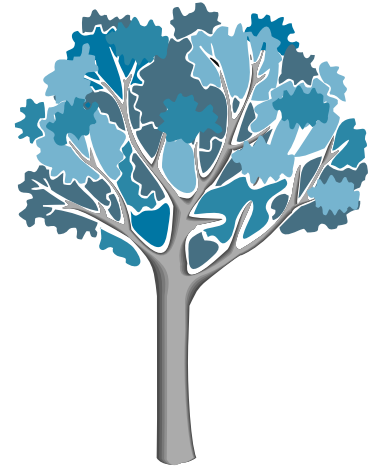
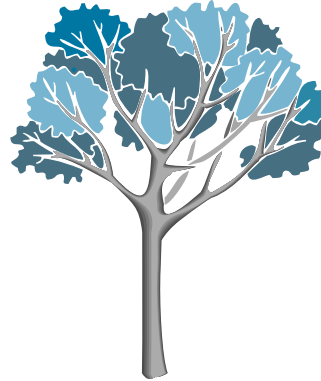
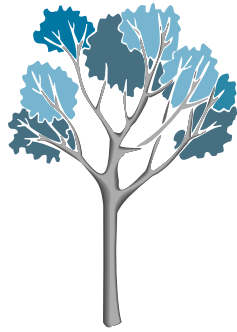
## Spring 2002 RITS

Spring 2002 RITS is coming this May and June. The following topics are planned: Natural Resource Injury; Sediments Part 1 – Policy, Guidance, and Characterization; Sediments Part 2 - Cleanup Alternatives; and Advances in Permeable Barrier Technologies. Register at the RITS web site [http://enviro.nfesc.navy.millerberb\\_a/support/rits/rits-oct01.htm](http://enviro.nfesc.navy.millerberb_a/support/rits/rits-oct01.htm)

For further information, call:  
**(805) 982-6586**

# Sustainable Systems Management

## Southwest Division



During these times of global uncertainty, a “sustainable approach” is critical to local, regional, and global military operations and their impact on humankind and the environment. As the Navy continues to play a key role internationally, the continued design and development of support installations and facilities are essential for the preservation and use of military assets and resources.

Admiral Johnson, NAVFAC, in his letter of January 2001, emphasizes the importance of sustainable development. “Sustainable Development is an integrated approach to facility engineering and management. It is important that all NAVFAC personnel be well versed in sustainability concepts and principles. It entails new ways of conducting NAVFAC’s business, and the time and effort of the personnel working to promote the evolution of these processes.”

Since sending out policy on Sustainable Development over 2 years ago, NAVFAC has been following a course of action demonstrating engineering leadership through a proactive commitment to environmentally sustainable facilities. The word is getting out that the Navy is

providing leadership in Sustainable Development, that we are leveraging the benefits of integrated design of shore facilities in harmony with the environment to reduce the total cost of ownership of facilities.

It is more important now than ever to execute Navy missions without compromising the ability of future generations to meet operational needs. Sustainable Systems Management (SSM) is the chosen method for Southwest Division’s (SWDIV’s) response to both NAVFAC policy and current Executive Orders that require the Navy and NAVFAC to provide products and services to its customers that incorporate sustainable methods and techniques. The primary objectives of SSM are to implement required policies and procedures; enhance business line processes; and support cost avoidance, worker efficiencies, innovation, and environmental stewardship.

The 1999 Department of Defense (DoD) report, “Sustainable Planning – Multi Service Assessment,” suggests: “Sustainability is a concept that recognizes human civilization is an integral part of the natural world and that nature must be preserved and perpetuated if the human

community is to sustain itself indefinitely. By subscribing to the fundamental concepts of sustainability and applying them to every and all aspects of human existence, improvements can be made to the existing condition that will ensure a life-giving and healthful world for future generations.”

As Federal facility managers, we play a key role in supporting the building and operation of more than 500,000 Government-owned or -leased facilities in excess of 3 billion square feet. These buildings use more than 60 billion kilowatt hours of energy each year, consume several hundred cubic miles of water, and cost billions of dollars in design, operation, maintenance, and repair. At SWDIV, we strive to bring value to our clients by implementing innovative methods and techniques that produce high quality sustainable products and services, whether we are designing and building new facilities or involved in major renovations. SSM is the key ingredient for ensuring that these benefits reach our clients.

Alan Hurt, SWDIV, Western Region Sustainability Coordinator, and Jim Graham, Senior Design and Plan-

ning Engineer, have championed the development of SSM and supporting systems that include both education and total system development. Their work involves orchestrating the integration of sustainability into SWDIV business lines and Business Management Systems (BMS). As the current Chair of the Federal Network for Sustainability (FNS), an organization made up of Federal agencies in the western region (including all branches of the armed services), Mr. Hurt has leveraged a variety of innovative and cutting-edge sustainability methods and techniques that have been incorporated into the Navy's SSM program.

FNS promotes cost-effective operations that are energy- and resource-efficient across all branches of Government. Through individual initiatives and joint ventures, FNS strives to better understand the interrelationships among energy use, economics, and environmental impact. The organization also educates and guides others in reducing Federal expenditures, while simultaneously advancing the principles of sustainability throughout the public and the private sectors. For more information about FNS, go to [www.federalsustainability.org](http://www.federalsustainability.org)

### Web Resource Paves the Way

Developing the right tools to implement an effective SSM is essential for integrating sustainability into the organization. As a result, SWDIV has taken the lead in developing solutions to support implementation of SSM. By developing a user-friendly web resource for sustainability, we are providing

Project Leaders (PLs) and Area Focus Teams access to a wealth of invaluable resources on SSM.

Captain Gary A. Engle, Commander SWDIV NAVFAC, said, "The planning, design, and final operation and maintenance of SWDIV facilities plays a key role in our overall mission. In order to ensure we achieve excellence in these areas, our team, supported by Naval Facilities Engineering Service Center (NFESC) has created a dynamic web interface for in-house planners, architects, and engineering personnel. This web resource provides specific guidelines and industry best practices for designing and operating sustainable facilities and installations." The system interacts with all core business lines and is being integrated into the SWDIV BMS.

"The development of this business support system will have long term operational applications with anticipated cost avoidance for our customers. The web site will be periodically updated to maximize the Navy's best practices," Mr. Hurt said. The web interface is a combination of resources, case studies, and analytical tools that consider overall lifecycle costs, customer needs, and requirements for new and existing facilities and installations.

Alan Hurt and Jim Graham were both instrumental in the design and development of this resource. CH2M Hill, in conjunction with the SWDIV Regional Sustainability Program, has been asked to build the site, which is currently scheduled to be available for use by all SWDIV business lines early in 2002. The company brings strong credentials in

sustainable development and specific work in SSM with the military at Marine Corps Base Camp Lejeune in Jacksonville, North Carolina; Tetra Tech EM Inc.; and Sullivan Consulting Group, as part of CH2M Hill's team, bring strong additional experience, particularly from their accomplishments in consulting and training for the Navy Environmental Leadership Program (NELP) and Environmental Management System (EMS).

A presentation on the SSM web resource was given at NAVFAC Headquarters in Washington, D.C., on 6 November 2001. The presentation involved both the SWDIV Sustainability Team and the Headquarters' Sustainability Working Group. There was an overwhelming show of support for the SSM web resource, and plans are currently underway to embrace it as Headquarters' potential single source for information and support on global sustainability.

As Federal employees, we are all involved in making key decisions that can affect the quality of our facilities, project cost, and environmental impact for any given project. It is essential that we understand the benefits of SSM and its application within our work processes, ensuring that we strive to minimize life cycle costs, reduce resource consumption, increase systems efficiencies, reduce waste, and create healthy work environments.

*For more information, call:*  
**(619) 524-6253**

# A Focused Investigation Reduces Extent and Cost of Groundwater Remediation

## Introduction

In situ air sparging (IAS) systems are typically designed so the total area influenced by the injected air approximates the areal extent of the target contaminant dissolved in groundwater. Another application of IAS is to design a curtain or barrier through which groundwater must travel to reduce contaminant concentrations as a migration control system. Within both of these applied design approaches to IAS, there exists the potential for greatly decreased economic efficiency with increasing heterogeneity of aquifer deposits. Heterogeneous aquifer deposits contain a variety of soil types distributed in a way that can make it very difficult to predict the soil type at a specific location in the three-dimensional space comprising the aquifer. This unpredictability results in designs that place wells in soil deposits that are either already clean, or that will not accommodate air flow at significant rates.

## Site and System Description

At the Department of Defense Housing Facility (DoDHF) Novato, California underground storage tanks (USTs) associated with a former Naval Exchange gasoline and service station released gasoline to a shallow, thin, unconfined aquifer in heterogeneous alluvial deposits. The USTs were removed and an interim remedial action was performed consisting of IAS and soil vapor extraction (SVE). Although the interim remedial action system was comprised of only 18 sparging wells and 13 vapor extraction wells, the system was able to remove over 10,000 kg of gasoline in the extracted vapor stream alone.

It was noted during the operations phase of the action that there was high variability in the achievable air injection and vapor extraction rates among system wells. A review of the boring logs revealed the system wells that accommodated the greatest volumetric flow rates were in deposits with slightly more coarse-grained material. The differences between flow rates were generally minor and easily overlooked.

## Objective

At a later phase in the project, it became necessary to select a technology that could be used to manage the potential for the gasoline additive methyl tertiary-butyl ether (MTBE) to move

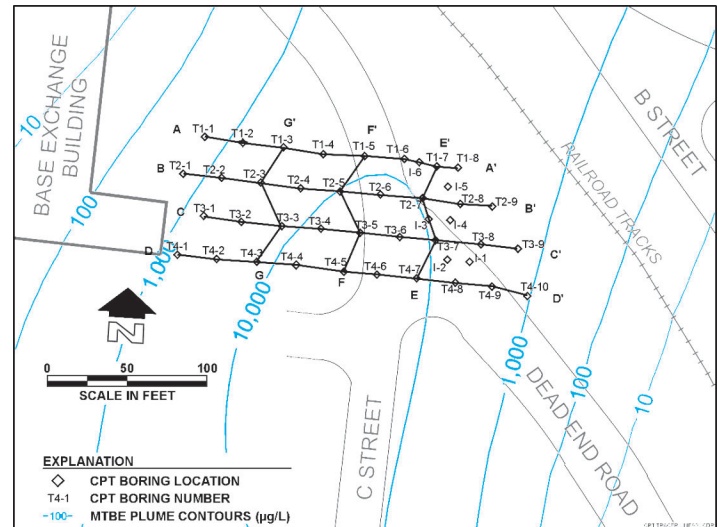


Figure 1. Cone penetrometer sampling grid

under a railroad easement. With the benefit of experience gained during the installation of the interim remedial action system, there was evidence that the majority of MTBE impacted groundwater was contained in the more coarse deposits hydraulically connected to the former source area around the excavated tank pits. A focused investigation was performed with the objective of determining the existence and location of the deposits storing or transporting the bulk of the MTBE upgradient from a railroad easement. Identifying this higher permeability feature would enable a more appropriately scaled corrective action to mitigate potential migration of MTBE.

## Methods

For this focused investigation, a cone penetrometer (CPT) unit was used to characterize the type and vertical distribution of deposits at selected locations arranged in a grid on the ground surface as shown in Figure 1. The CPT unit was used to advance a probe from the ground surface to the aquitard. The probe was equipped with strain gauges on the tip and the mounting collar to measure tip resistance and sleeve friction. A porous sleeve located just above the cone tip measures the pore water pressure. All these data are recorded in real time as the probe is advanced through the soil column. The measured

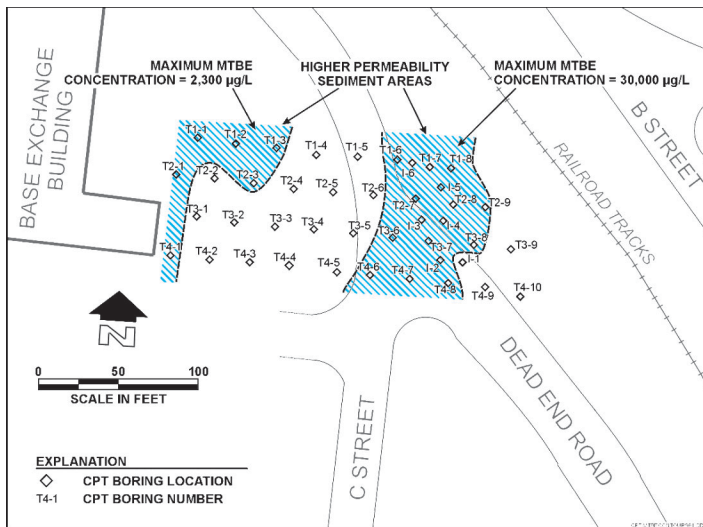


Figure 2. Aerial view of more permeable deposits (in blue)

values are displayed numerically and graphically for immediate interpretation of the soil types encountered at various depths. Computer software translates input values from the probe and provides the soil type that best resembles the data. As the probe was advanced to near the aquitard, a groundwater sample was collected at selected locations to determine the correlation between MTBE concentration and the permeability of the deposits.

The soil type and location data were used to develop a three-dimensional representation of the sandier deposits through which groundwater flowed within the area of interest near the railroad easement. A two-dimensional representation of the permeable channel showed an areal view of the permeable channel that generally coincided with the greatest levels of MTBE in groundwater in that area (Figure 2), as would be expected if that channel was hydraulically connected to the former source area. Conversely, another sandy area was identified by the CPT investigation that was separated by about 70 feet of finer deposits. The other sandy region had much lower MTBE levels in groundwater, and was probably less directly connected hydraulically with the former source area.

The areal distribution was used to confirm the location of deposits having elevated groundwater MTBE levels and the location of tighter deposits in which the selected migration control technology would be less effective. An estimation of the relative volumetric flow rate and MTBE concentrations in groundwater indicated that the permeable channel (shown in blue in Figures 2 and 3) conducts 95% of the MTBE through a vertical cross section.

Based partially on the confirmation of the existence of these permeable deposits, an in situ approach consisting of biosparging was recommended. The potential for in situ aerobic biodegradation of MTBE has been confirmed in a laboratory study with local sediments and groundwater.

A conceptual design of the proposed sparging system was developed using the CPT investigation and minimizing the placement of system wells in tight deposits where less air flow would be achieved (Figure 3).

The total system proposed will include additional sparging wells to treat groundwater upgradient from the area shown, and will include approximately 50 sparging wells.

### Cost Avoidance

This focused investigation reduced the required areal extent of the proposed sparging system by about 75%. The CPT investigation cost approximately \$11,000 and will result in an avoidance of approximately \$80,000 in system components and labor by avoiding the installation of low productivity sparging wells and monitoring wells in tight deposits. Additional cost avoidance of about \$70,000 will result from sampling and analytical costs avoided by the focused system design.

For further information, call:  
(619) 532-0907

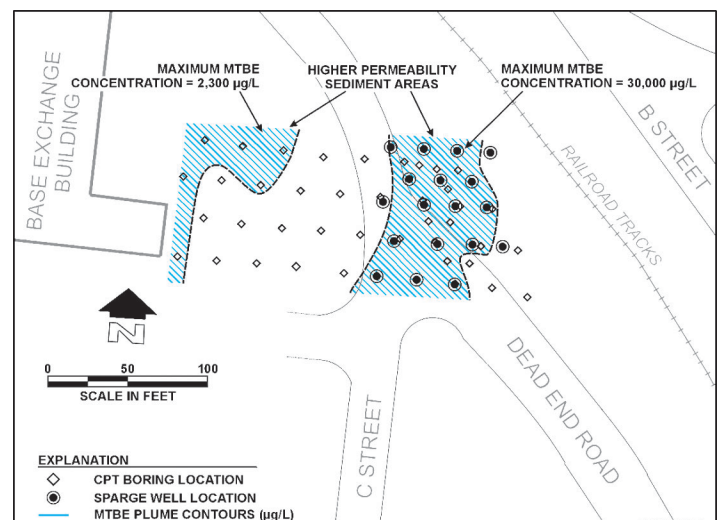


Figure 3. Sparging well placement conceptual system design (in blue)

# In Situ Bioremediation of MTBE in Groundwater

## Large Scale BioBarrier Demonstration at Port Hueneme, California

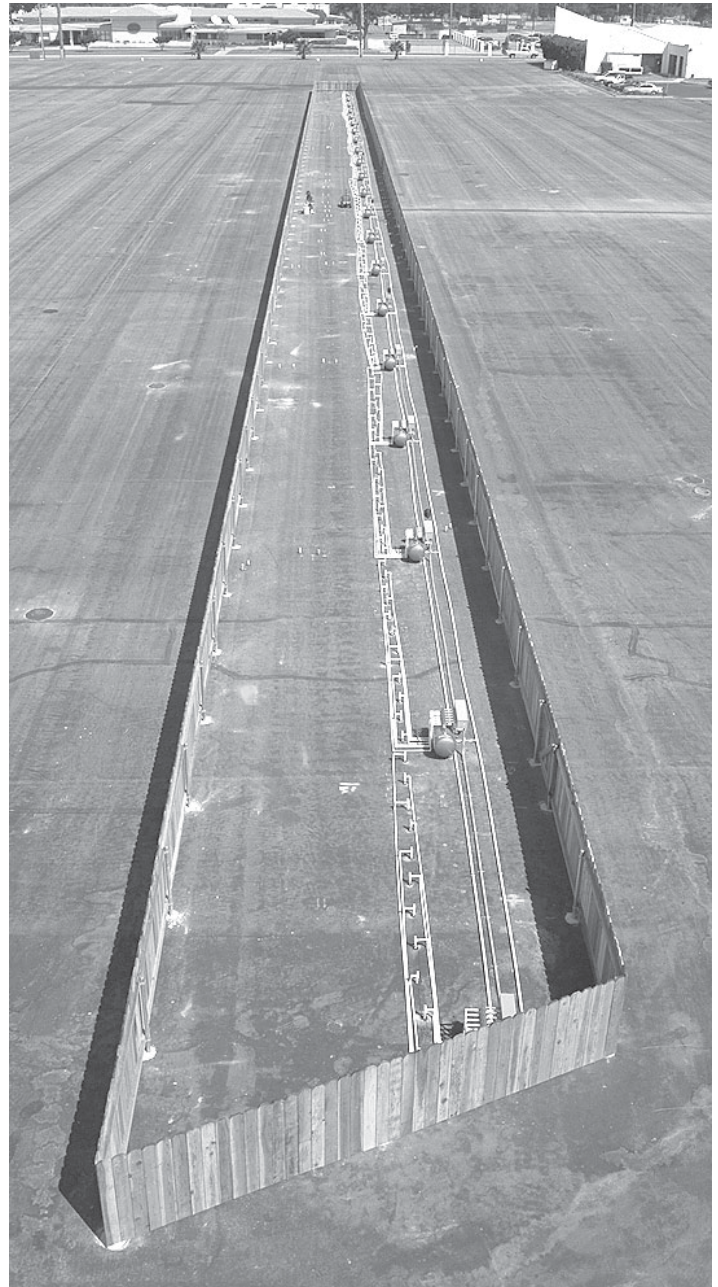
*SERDP-funded research and development efforts and ESTCP-funded demonstration and validation activities continue to provide a rapidly increasing number of outstanding technical advances. These developments are highly important and relevant to the Department of Defense (DoD), Department of Energy (DOE), Environmental Protection Agency (EPA), and many other user communities.*



In situ containment and treatment of methyl tertiary-butyl ether (MTBE) contaminated aquifers is becoming increasingly important to both the private and public sectors. Innovative treatment methods are being developed and studied because the effectiveness of traditional treatment options may be limited by MTBE's unique chemical properties. For the past 2 years, the Department of Defense's (DoD's) Environmental Security Technology Certification Program (ESTCP) has been sponsoring a large-scale MTBE plume containment demonstration at the Naval Base Ventura County in Port Hueneme, California. Researchers from the Naval Facilities Engineering Service Center (NFESC) and Arizona State University are conducting the demonstration. This passive flow-through biobarrier system has been designed to degrade MTBE and other dissolved hydrocarbons leaving the downgradient edge of a residual gasoline-impacted source zone. This site is somewhat unique in that the dissolved MTBE plume is approximately 500 feet wide and about a mile long. Dissolved MTBE concentrations upgradient of the biobarrier are as high as 10 mg/L, and benzene, toluene, ethylbenzene, xylene (BTEX) compounds are also present at mg/L concentrations in the central core of the plume. Several different combinations of bioaugmentation and air and oxygen biostimulation are being evaluated in this large-scale demonstration, shown in Figure 1.

The treatment performance of the biobarrier system has been exceptional. Groundwater treatment efficiencies in excess of 99.9% have been achieved and sustained during the first 15 months of operation. The MTBE concentrations downgradient of the biobarrier are less than 5 parts per billion. MTBE and other dissolved petroleum hydrocarbons from gasoline are being converted to innocuous carbon dioxide and water. No wastes are being generated and no water disposal is necessary. The operation and maintenance costs are low, and the power requirements are minimal. The demonstration has been extremely visible at the national level, and it was recently awarded the prestigious 2001 Outstanding Groundwater Remediation Project Award from the National Groundwater Association.

*For more information, call:*  
**(805) 982-1010**



*Figure 1. MTBE biobarrier demonstration*



## Before System Installation

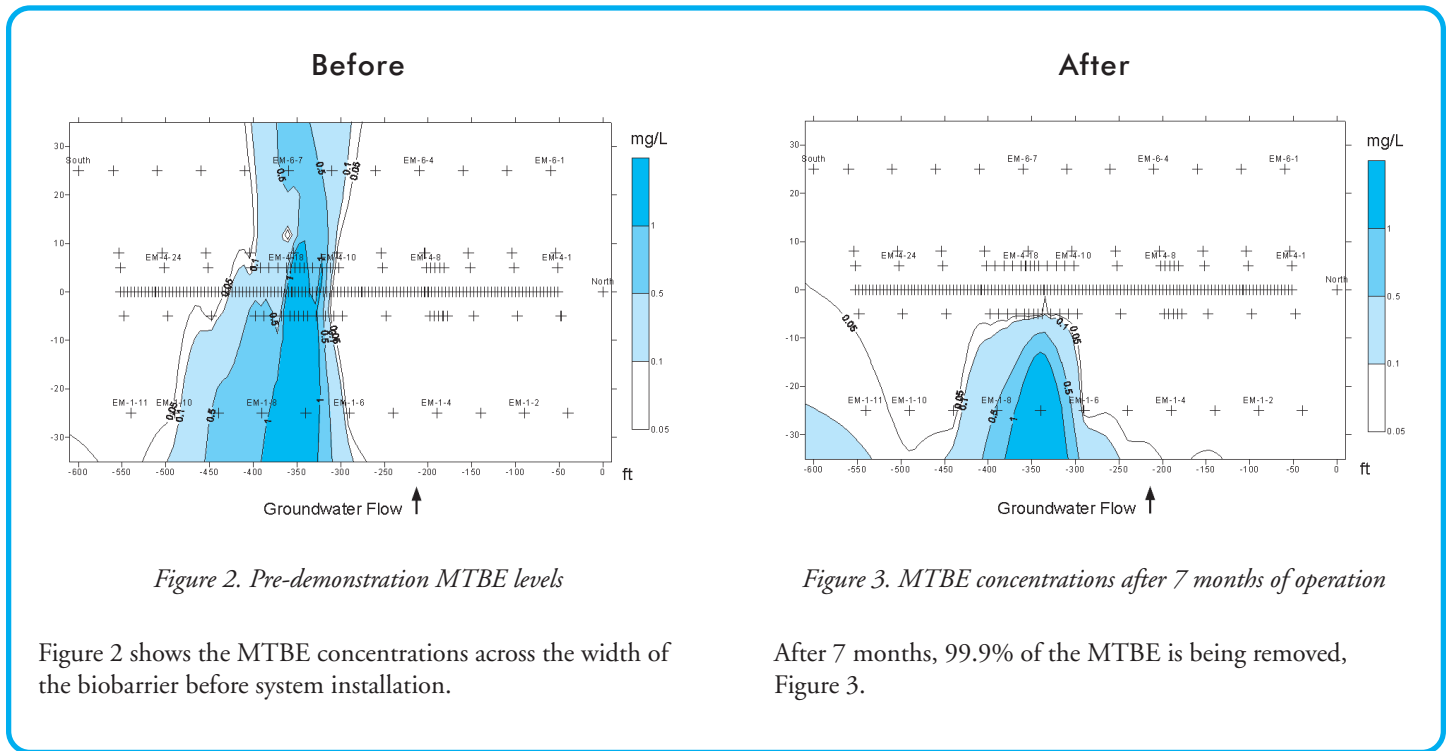


Figure 2. Pre-demonstration MTBE levels

Figure 3. MTBE concentrations after 7 months of operation

Figure 2 shows the MTBE concentrations across the width of the biobarrier before system installation.

After 7 months, 99.9% of the MTBE is being removed, Figure 3.

## After System Installation

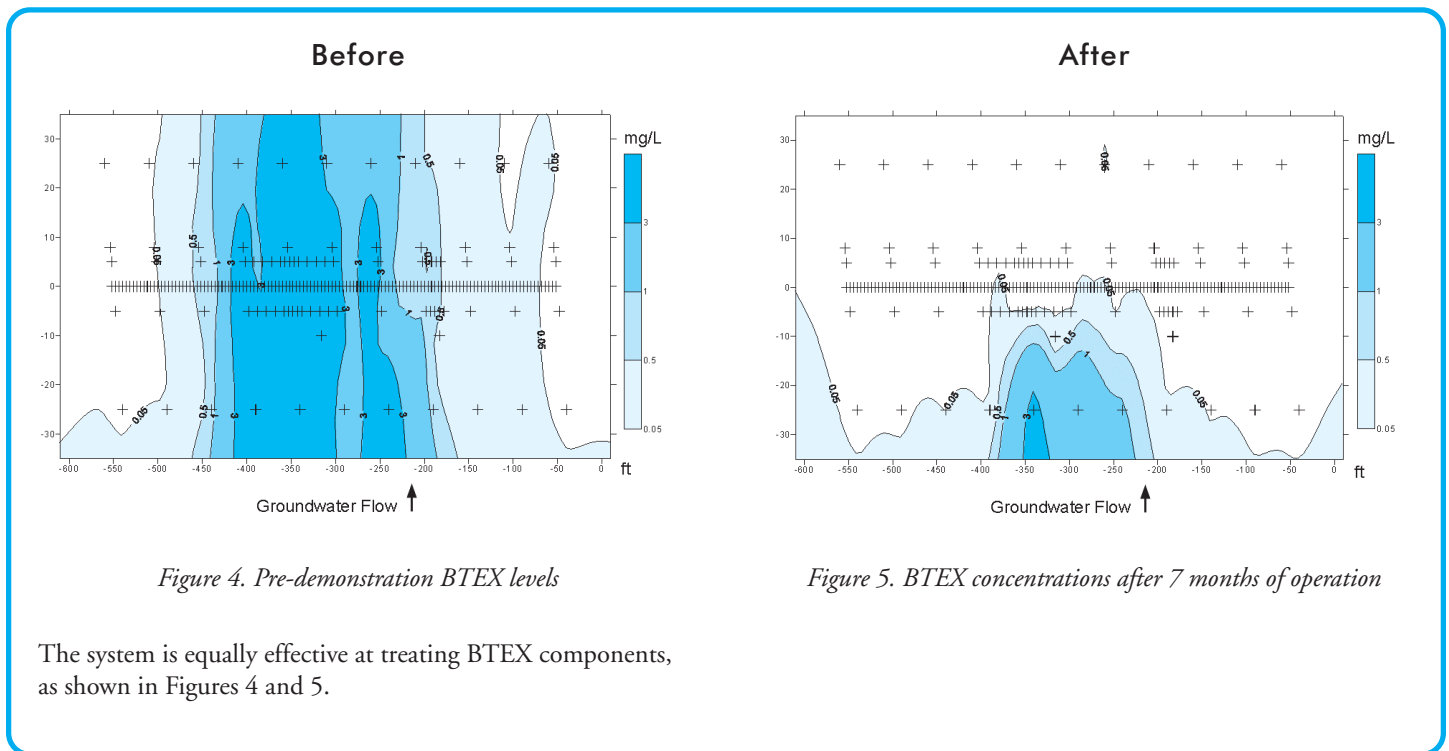


Figure 4. Pre-demonstration BTEX levels

Figure 5. BTEX concentrations after 7 months of operation

The system is equally effective at treating BTEX components, as shown in Figures 4 and 5.

# EMACs Provide New Cost-Effective Contracts for Navy

## Southwest Division



### EMACs Are the Wave of the Future

Southwest Division (SWDIV) has been working hard to refine its environmental services contracting strategy to best serve the needs of the Installation Restoration (IR) Program. Historically, the Cost-Plus Award Fee (CPAF) contracts—mainly the Comprehensive Long-Term Environmental Action Navy (CLEAN) and Remedial Action Contract (RAC)—have been used extensively because site characterization was limited, the technological solutions did not always work as planned, and therefore the risks to the contractor were very high. The CPAF approach has worked well, but in today's era of limited budgets, program constraints, and the increased demand for small business opportunities, additional contract methods had to be pursued. To that end, in September 2001, SWDIV embarked on a new, innovative contracting direction for remedial action services by awarding four Small Business Set-Aside firm fixed-price, indefinite delivery/indefinite quantity (IDIQ) Environmental Multiple Award Contracts (EMACs) to support Remedial Action Operations and Long-Term Monitoring (RA-O/LTM) on the west coast.

### The Rationale for EMACs

Why make the transition to EMAC fixed-price contracts? The transfer of the existing BRAC environmental workload from EFA West to the Southwest Region, as well as demand for a greater variety and flexibility of contracting tools, amplified the need to fine-tune

existing contractual vehicles and capacities with a view toward other alternatives. Furthermore, limitations placed on large (>\$130 million) IDIQ contracts for Environmental Restoration, Navy (ER,N)-funded projects necessitated the formulation of a new, more focused strategy for acquisition and procurement, which emphasizes greater use of firm fixed-price contracts where appropriate.

SWDIV determined in their FY00 Acquisition Strategy Plan that EMACs were the type of contract that offered substantial cost savings advantages. By use of competitive fixed-price contracting on projects where the scope of work is well defined, the Navy can both save money and reduce its financial risks. This is the case on an increasing number of SWDIV projects, as more site information becomes available and as the sites progress through the CERCLA/RCRA latter phases of work. For RA-O/LTM work, this is especially true. As SWDIV's IR Program continues to progress and mature, SWDIV hopes to further identify opportunities for fixed price contracting for remedial and removal action activities.

### Fixed-Price Competition Brings More Value and Builds Long-Term Relationships

EMACs also provide the government with many value-added advantages: environmental firms must compete openly with one another via a rigorous, two-tiered source-selection process to determine the most highly qualified

companies. This method evaluates and then rates the firms' proposals based on their technical approach and price for an initial project, plus their overall specialized experience, past performance, management approach, and other price considerations. After the award of the basic contracts, delivery orders can be issued on the basis of low price, best value, or lowest priced technically acceptable criteria depending on the needs of each individual project. Since EMACs are fixed-price vehicles, risks and costs to the Navy are greatly reduced. Furthermore, since EMACs comprise fairly large IDIQ multi-year contracts, the repeat business establishes long-term relationships that should promote quality work at a reasonable cost. SWDIV has already realized some significant cost savings and anticipates that the RA-O/LTM EMACs will be very successful.

### A Promising Future for SWDIV's Small Business Initiatives

A single solicitation was issued as a Small Business Set-Aside under North American Industrial Classification (NAICS) 562910 to procure RA-O/LTM services. Four RAO-LTM EMAC contracts were awarded. The contracts will be instrumental in expanding SWDIV's Small Business opportunities for environmental services. The period of performance for the contracts is a base year plus four option periods. The aggregate value of all task orders issued under the contracts is not to exceed \$120 million. Each task order will be competed among the successful

awardees. The RA-O/LTM EMAC is the first of four EMAC contracts that SWDIV plans to award. Solicitations have been issued for a \$240 million Unrestricted EMAC with Small Business Reserve, and two \$20M 8(a) Set-Aside Remediation EMACs to be awarded in fiscal year 2002. Distribution of work to the various EMACs will be based on the type of work, estimated dollar value (\$3 million or greater) as well as capability, capacity, and complexity. The RA-O/LTM EMAC and the Unrestricted EMAC are available for projects anywhere on the west coast. The 8(a) EMAC footprints are more restrictive; one is for the northern California area and one is for the southern California area. They are designed to handle projects with estimated values of \$3 million or less. When all the contracts are in place SWDIV will have a fixed price environmental contract capacity of \$400 million that meets legislative and program requirements and enhances SWDIV's commitment to Small Business programs.

### EMACs Chart New Course for the Navy

Although the CLEANs and RACs will continue to be used as essential contracting vehicles, legislative and program requirements and the maturity of the IR Program demand that the acquisition and execution strategies that are employed at SWDIV provide the flexibility to adjust to changing conditions. The EMAC is the ideal firm fixed-price vehicle for the Navy to meet the environmental workload requirements of the 21<sup>st</sup> century, for today's projects demand carefully chosen established environmental firms that will perform fast-paced, high-quality work. These firms must achieve cleanup goals under tight timeframes, yet with significant cost controls in place. To that end, the EMAC contract approach is charting a new course for the Navy.

## Recent and Future Fixed-Price ID/IQ Contract Awards at SWDIV

### Multimedia Compliance Studies

The Multimedia Compliance Studies contract was awarded to CDM Federal Programs on 6 September 2001. The capacity of this contract is \$40 million, with a base year and four option years.

### CERCLA/RCRA/UST Studies and Remedial Design

The CERCLA/RCRA/UST Studies and Remedial Design contract was awarded to Tetra Tech EM Inc. on 6 November 2001. The capacity of this contract is \$40 million, with a base year and four option years.

### Remedial Action Operations (RAO) & Long Term Monitoring (LTM), Small Business Set Aside EMAC

The RAO/LTM EMAC was awarded to four small businesses on 29 September 2001. The aggregate capacity of these contracts is \$120 million, with a base year and four option years. The seed project at Marine Corps Air Station Yuma, Arizona, was awarded to Terra Vac, a firm located in Anaheim, California.

The 4 recipients of the contract are:

**Terra Vac**  
*Anaheim, California*

**TN & Associates, Inc.**  
*Milwaukee, Wisconsin*

**Pacific Treatment Environmental Services, Inc.**  
*El Cajon, California*

**Cape Environmental Management, Inc.**  
*Tustin, California*

### Remedial/Removal Action at Engineering Field Activity Northwest, Small Business Set Aside EMAC

The Remedial/Removal Action EMAC was awarded to two small businesses on 19 December 2001. The aggregate capacity of these contracts is \$50 million, with a base year and four option years.

The 2 recipients of the contract are:

**Geoengineers, Inc.**  
*Redmond, Virginia*

**Shannon & Wilson, Inc.**  
*Seattle, Washington*

### Remedial/Removal Action, EMAC with Small Business Reserve

The Remedial/Removal Action EMAC with Small Business Reserve is currently in source selection, with an anticipated award in April 2002. The aggregate capacity will be \$240 million, with 3 to 6 awards.

### Remedial/Removal Action, 8(a) EMAC

Two separate solicitations (Southern California and Northern California) for the Remedial/Removal Action 8(a) EMAC are planned, with an anticipated award in April 2002. The aggregate capacity of each solicitation will be \$20 million, with 3 to 6 awards for each solicitation.

# Upcoming CECOS Courses



Information on these free CECOS course schedules and enrollment are available at <https://www.cecosp.navy.mil/>. To enroll in classes below, contact the Registrar at (805) 982-8295 to obtain the Quota Request Form and confirmation of receipt, then submit the form to the CECOS Registrar via fax at (805) 982-2918.

## Compliance

### Hazardous Waste Annual Refresher

26 July 2002	San Diego, California
12 August 2002	Southwest Region
13 September 2002	Port Hueneme, California

### Hazardous Waste Generators/Handlers

22-25 July 2002	San Diego, California
9-11 September 2002	San Diego, California

## Environmental Management

### Advanced Environmental Law

6-9 Aug 2002	Port Hueneme, California
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### Advanced Environmental Management

4-14 Jun 2002	Port Hueneme, California
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### Air Installations Compatible Use Zones Seminar

21-23 May 2002	TBD
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### Basic Environmental Law

17-19 Sep 2002	San Diego, California
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## Health and Environmental Risk Communication

6-8 August 2002	San Diego, California
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## Restoration Ecological Risk Assessment

10-12 Sep 2002	San Diego, California
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## Environmental Geographic Information Systems

17-18 Jun 2002	San Diego, California
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## Geostatistics

19-20 Jun 2002	San Diego, California
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## HAZWOPER for Uncontrolled Hazardous Waste Site Workers

29 July – 2 August 2002	San Diego, California
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## HAZWOPER for Uncontrolled Hazardous Waste Site Workers Refresher

17 June 2002	Port Hueneme, California
5 August 2002	San Diego, California
6 August 2002	San Diego, California

# 2002 ITRC Internet Training Schedule

The Interstate Technology and Regulatory Council (ITRC) in conjunction with the Environmental Protection Agency (EPA) Technology Innovation Office offers a wide variety of Internet training events on innovative environmental methods and technologies. Below is the list of ITRC Internet training scheduled for 2002. Course registration will open approximately 4-6 weeks in advance of the training date. Additional course information and registration details are available at [www.itrcweb.org](http://www.itrcweb.org). Also, you can download the ITRC Technical and Regulatory Guidance Documents that are the basis for the training materials from the website. Call (402) 325-9615 for additional information. ITRC also offers **classroom training courses** - scheduled 2002 courses are listed below the Internet training courses - additional details at [www.itrcweb.org](http://www.itrcweb.org).

## ITRC Internet Training 2002

### Advanced Techniques on Installation of Iron Based Permeable Reactive Barriers and Non-Iron Based Barrier Treatment Material

13 June (11:00 am – 1:15 pm EASTERN Time)  
17 September (2:00 pm – 4:15 pm EASTERN Time)

### Constructed Treatment Wetlands

5 November (2:00 pm – 4:00 pm EASTERN Time)  
21 November (11:00 am – 1:00 pm EASTERN Time)

### Enhanced In Situ Bioremediation of Solvents in Groundwater

18 June (2:00 pm – 4:00 pm EASTERN Time)

### In Situ Chemical Oxidation

14 May (2:00 pm – 4:15 pm EASTERN Time)  
20 August (2:00 pm – 4:15 pm EASTERN Time)

### Natural Attenuation of Chlorinated Solvents in Groundwater: Principles and Practices

22 August (11:00 am – 1:00 pm EASTERN Time)

### Passive Diffusion Bag Samplers for Volatile Organic Compounds in Groundwater

16 May (11:00 am – 1:00 pm EASTERN Time)  
15 August (11:00 am – 1:00 pm EASTERN Time)  
24 September (2:00 pm – 4:00 pm EASTERN Time)

### Permeable Reactive Barriers for Chlorinated Solvent, Inorganic, and Radionuclide Contamination

11 June (2:00 pm – 4:15 pm EASTERN Time)

### Phytotechnologies

13 August (2:00 pm – 4:15 pm EASTERN Time)  
10 December (2:00 pm – 4:15 pm EASTERN Time)

### Small Arms Firing Range Characterization and Remediation Technologies

26 September (11:00 am – 1:00 pm EASTERN Time)  
19 November (2:00 pm – 4:00 pm EASTERN Time)

### Systematic Approach to In Situ Bioremediation: Nitrates, Carbon Tetrachloride & Perchlorate

20 June (11:00 am – 1:00 pm EASTERN Time)  
19 September (11:00 am – 1:00 pm EASTERN Time)  
7 November (11:00 am – 1:00 pm EASTERN Time)  
12 December (11:00 am – 1:00 pm EASTERN Time)

*All course dates are subject to change, check the ITRC website for the most up-to-date information ( [www.itrcweb.org](http://www.itrcweb.org) )*

## ITRC Classroom Training Schedule 2002

*Check the ITRC website for additional details at: [www.itrcweb.org](http://www.itrcweb.org)*

### UXO Basic Training (Unexploded Ordnance)

21-22 May in Boston, MA  
23-24 July in Seattle, WA  
10-11 December in Monterey, CA

### Accelerated In Situ Bioremediation of Chlorinated Solvents

Dates to be determined.

### Phytotechnologies: Mechanisms and Applications

Additional dates to be determined.

Register for an ITRC training course today.

# 34th Mid-Atlantic Industrial & Hazardous Waste Conference

Cook College, Rutgers University

New Brunswick, New Jersey

20-21 September 2002

The Mid-Atlantic Industrial and Hazardous Waste Conference is an annual meeting of engineering and science professionals from academia, Government, and industry. Recent developments in research, engineering practice, and regulation are exchanged through oral and poster presentations. Selected papers and extended abstracts will be published in the Conference Proceedings.

Rutgers University will host the 34th Mid-Atlantic Industrial and Hazardous Waste Conference. The conference is chaired by Dr. Max Häggblom and co-chaired by Dr. Donna Fennell and Dr. Kenneth Lee, and is sponsored in part by the Department of Biochemistry and Microbiology and Biotechnology Center for Agriculture and the Environment (Cook College), and the Department of Civil and Environmental Engineering. For more information visit <http://cook-college.rutgers.edu/~biotech/MAIHWI/index.htm>.

Papers are sought that address the following areas:

- Novel treatment processes for industrial waste, soil, sediments, groundwater, and gas-phase pollutants, including bioreactors, bioremediation and in situ technologies.
- Biodegradation processes, microbiology and novel organisms.
- Environmental toxicology.
- Water treatment and disinfection.
- Integrated waste management, landfills, composting and waste-to-energy technologies.
- Hudson River and New York Harbor estuary contamination.

- Watershed and water quality modeling.
- Sediment and contaminant transport modeling.
- Pollution prevention, waste minimization, green engineering, industrial ecology, and sustainability.
- Radioactive waste, minimization, disposal, and policy issues.

Deadline for submitting abstracts is Friday, 31 May 2002.

## Guidelines

Prospective contributors are invited to submit a 300-word abstract by Friday, 31 May 2002. Authors should indicate whether an oral presentation or poster presentation is preferred. The abstract should reflect work that is nearing completion, rather than proposed work. Papers describing fundamental and applied studies at the bench-, pilot- or full-scale levels are encouraged. Abstracts should include the title, author(s), affiliation(s), the mailing address, and e-mail address of the corresponding author. Presenters will be invited to submit extended abstracts or full papers. The deadline for full paper submission is Friday, 2 August 2002.

Papers will be selected based on technical content, originality, and relevance to the conference topics. Students are encouraged to present at the conference and will receive a substantial discount in registration fees.

*Abstracts should be sent by mail or e-mail to:  
Biotechnology Center for Agriculture  
and the Environment  
Cook College, Rutgers University  
59 Dudley Road, New Brunswick, NJ 08901  
[maihwc@aesop.rutgers.edu](mailto:maihwc@aesop.rutgers.edu)*

## 2002 Cleanup Conference A Big Success



*The 2002 Navy and Marine Corps Cleanup Conference gets underway with the opening General Session. Captain Richard O. Gamble, II, Commanding Officer of Naval Facilities Engineering Service Center (NFESC), welcomes conference attendees.*

The 2002 Navy and Marine Corps (N&MC) Cleanup Conference was held in Oxnard, California, on 5, 6, and 7 February. More than 200 environmental professionals from the N&MC attended the conference. 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 NAVFAC HQ provided an update on the overall status of our cleanup program, the latest issues and policies, and addressed questions. NAVFAC Work Groups gave updates on their progress. CNO presented the Environmental Restoration Employee of the Year awards to each Engineering Field Division and Activity (EFD/A) and the Naval Facilities Engineering Service Center (NFESC).

There were over 60 technical presentations on actual cleanup projects involving innovative technologies, contaminated sediments, risk assessment, legal issues, and ranges and ordnance sites. Environmental training sessions for project managers were offered on the budget process, Defense-State Memorandums of Agreements (DSMOAs), how to document a remedy as operating properly and successfully, innovative technologies for chlorinated compounds, monitored natural attenuation, and unexploded ordnance detection and identification.

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 2002 Restoration Employees of the Year Award winners (from left to right): Mr. Antonio Tactay (EFA West), Mr. Robert A. Nash (NFESC), Mr. Nick Ugolini (Southern Division), Mr. Edward J. Boyle (EFA Northeast), Mr. Andrew D. Gutberlet (EFA Chesapeake), Mr. Jerry T. Dunaway (Southwest Division), and Mr. Timothy A. Reisch (Atlantic Division). Not pictured: Ms Janice Fukumoto (Pacific Division) and Mr. James Brown (EFA Northwest).*



*Breaks between presentations encouraged open discussions.*

## Reminder

Get a head start on your article for upcoming issues of RPM News.

Please provide text, original photos, and/or drawings. Tentative deadlines for each upcoming issue of RPM News are provided below.



### DEPARTMENT OF THE NAVY

Commanding Officer  
NFESC Code 413/Ortiz  
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Port Hueneme, CA 93043-4370

