

MARE ISLAND EARLY TRANSFER SUCCESS

The Navy has reached agreement with the City of Vallejo for the early transfer of parts of the former Mare Island Naval Shipyard (Mare Island). On December 1, 2000, the City of Vallejo hosted a ceremony to recognize the Agreement in Principle for the Eastern Early Transfer Parcel and the work of the Mare Island Base Realignment and Closure (BRAC) team. This early transfer agreement is a major achievement for the Mare Island team, including SWDIV and Tetra Tech EM Inc. (Tetra Tech). The transfer is the biggest, most complex early transfer agreement the Navy has achieved so far, and the process and procedures developed will likely be used as a template for future early transfer negotiations.

Attending the ceremony were Mr. Randal Yim, Deputy Under Secretary of Defense for Installations; Mr. William Cassidy, Deputy Assistant Secretary of the Navy for Conversion and Redevelopment; Mr. Harry Zimmerman, Director of the NAVFAC BRAC Program Office; CAPT Engle, SWDIV; CAPT Buchanan, EFA WEST; Congressman George Miller; and representatives

from U.S. Senator Diane Feinstein's office, the Governor's office, the California Department of Toxic Substances Control (DTSC), the U.S. Environmental Protection Agency, and SWDIV. The ceremony began with a groundbreaking of the Roosevelt Terrace parcel (renamed The Village at Terrace Park). Roosevelt Terrace was the first parcel at Mare Island transferred to the City of Vallejo, in May 2000. The city subsequently sold this former Navy housing unit to a development firm. The groundbreaking celebrated the transfer and the beginning of redevelopment of the property as civilian housing units.



Edwin F. Lowry of DTSC and City of Vallejo Mayor Anthony Intintoli sign the Consent Agreement

Next, Certificates of Recognition acknowledging the Agreement in Principle between the Navy and the City of Vallejo on the Eastern Early Transfer Parcel were awarded. Mayor Anthony Intintoli, City of Vallejo, and Mr. Ed Lowry, DTSC,

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NAPALM REMOVAL PROJECT HELPS OVERCOME NEGATIVE PERCEPTIONS

The Navy has successfully processed almost 90 percent of the Vietnam-era napalm canisters stored since the early seventies at three sites at



The waste separation facility at Naval Weapons Station Fallbrook uses state-of-the-art equipment to separate the wastes from the napalm canisters for out-of-state processing.

Naval Weapons Station Fallbrook (Fallbrook), California. Previous attempts to dispose of the napalm encountered legal, financial, and public perception obstacles.

To overcome these obstacles, the Navy embraced criticisms and concerns to develop and open a facility that emphasized environmental safety. SWDIV Remedial Project Manager J.D. Brigance emphasized that the success of the project is linked to project priorities of "safety of personnel and the public; compliance with environmental, transportation, worker safety, and other regulations; production [to] meet the March 2001 deadline for draining and shredding canisters and the July 1, 2001 deadline for waste stream disposal; and cost [to] come in at or below budget [that] currently totals \$48 million."

WASTE SEPARATION AND RECYCLING

As part of a time-critical removal action (TCRA), all but about 4,000 of the original inventory of 34,515 napalm canisters have been processed. The Navy has agreed with the California Department of Toxic Substances Control (DTSC) not to burn or treat napalm in California. The napalm

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S U C C E S S S T O R I E S

TEAMWORK CATALYST FOR SITE CLOSURES

All five leaking underground storage tank (LUST) sites at Marine Corps Air Station (MCAS) Yuma have received closure from the Arizona Department of Environmental Quality (ADEQ). These site closures culminate more than 5 years of site investigation, monitoring, and remediation at MCAS Yuma. The five LUST sites (Fuel Farm, Motor Transportation Pool, Former Exchange Gas Station, Building 310 Free Product Area, and Site 610) included 22 LUST case file numbers associated with the 31 former underground storage tanks (UST). The first site closure was granted in September 2000 for the Motor Transport Pool. The last of the five site closures was the Fuel Farm, granted in December 2000.

Since closure, site restoration has been conducted at each of the LUST sites. Restoration includes the removal and transport of the government-owned treatment systems to other U.S. Navy locations for continued use, permanent abandonment of at least 110 groundwater monitoring and remediation wells, and removal of more than 5,000 feet of subsurface piping for the remediation system. The well abandonments represent 9,000 feet of well casing removed. All site restoration was completed by January 31, 2001.

COOPERATION KEY TO SUCCESS

The catalyst for site closures was the teamwork exhibited among the MCAS Yuma team and ADEQ. Greg Westling, project engineer with The IT Group, most recently directed site closure. He defined and directed closure in close coordination and cooperation with Kirk Creswick of ADEQ, and under the guidance and leadership of the SWDIV Remedial Project Manager, Mike Gonzales and MCAS Yuma Base Environmental Department UST Manager, Larry Leake. Mike Gonzales of SWDIV stated, "The IT Group personnel provided a high quality professional service in closing LUST files at MCAS Yuma. Their insight to the LUST program provided the base with closures to all of the open LUST cases through discussion with the state regulatory personnel."

Remediation consisted of air sparge/soil vapor extraction (AS/SVE), vacuum-enhanced free product skimming, vacuum-enhanced total fluid recovery, and oxygen release compound (ORC). Contamination consisted of dissolved phase total petroleum hydrocarbons (gasoline and diesel),

benzene, toluene, ethylbenzene, xylenes (BTEX), free-phase jet propellant 5 (JP-5) jet fuel, and methyl tert-butyl ether (MTBE). One LUST case



IT team abandoning a 2-inch air sparge well

associated with low levels of MTBE detected in two monitoring wells at the former Exchange Gas Station was closed by ADEQ with the implementation of institutional controls.

The AS/SVE technology at three of the sites consisted of oil-less rotary vane pumps for air sparging and catalytic oxidizers for vapor extraction and treatment. Two 250 standard cubic feet per minute (scfm) and one 500 scfm natural gas-fired Paragon SVE units were rotated among the sites based on mass removal requirements. More than 60 SVE/monitoring wells and 55 air sparge wells were installed at four of the sites. ORC socks were inserted in selected monitoring wells to enhance aerobic biodegradation. The highest concentration of total petroleum hydrocarbons (TPH) in soil was 56,000 milligrams per kilogram (mg/kg). The highest concentration of benzene was 20 mg/kg in soil and 2,300 micrograms per liter ($\mu\text{g/L}$) in groundwater. The cumulative mass removed from both biodegradation and active remediation at the sites was estimated to be in excess of 300,000 pounds. More than 6,000 gallons of free-product (JP-5) were removed at the Building 310 site. Confirmation soil borings were drilled and groundwater samples were collected at each of the sites to evaluate whether current site conditions meet ADEQ closure standards.

For more information please call Mike Gonzales (SWDIV) at 619-532-3178.

RECORDS OF DECISION
SIGNED FOR YUMA,
TUSTIN, AND EL TORO

Over the past 6 months, SWDIV project teams have successfully finalized records of decision (RODs) for sites at three Navy installations. These include an interim ROD for two landfill sites at Marine Corps Air Station (MCAS) El Toro, a no-action ROD for several sites at MCAS Tustin, and a ROD for contaminated groundwater at MCAS Yuma. These documents are described in more detail below.

An interim ROD for landfill Sites 2 and 17 at MCAS El Toro was signed in July 2000. This ROD allowed the Navy to begin remedial design of 4-foot thick monolithic soil caps for both landfill sites. The soil caps were selected because they are protective, easy to maintain, and comply with substantive federal and state requirements. The monolithic caps will also allow the area to eventually be revegetated with coastal sage scrub, the natural habitat for the California gnatcatcher that occupies the area around the landfills. The ROD was issued as an interim document because it does not address groundwater at Site 2, which is contaminated with a small amount of trichloroethene (TCE) at a concentration that exceeds the maximum contaminant level (MCL). The final ROD will address groundwater and present the results of a radiological survey of the landfill sites that is scheduled for early 2001.

In September 2000, a no-action ROD was finalized for three sites and nine areas of concern (AOC) at MCAS Tustin. The Navy evaluated these sites and AOCs and determined that the existing condition is protective of human health and the environment. No monitoring or deed restrictions are required to address chemicals present in soil or groundwater as a result of operations at the no-action sites and AOCs. However, one of the Installation Restoration Program (IRP) sites and three of the AOCs are located near large plumes of volatile organic compounds in groundwater that originate elsewhere at MCAS Tustin. The Navy agreed that the property that contains the no-action sites and AOCs would not be transferred (with the exception of an early transfer) until the evaluation of groundwater is complete and the remedy has been finalized. The remedy for the groundwater plumes may include use restrictions.

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S U C C E S S S T O R I E S

FAST-TRACK LANDFILL CAP A SUCCESS

The IT Group was assigned the design and fast-track construction of a 14-acre emergency land-



View of the landfill cap progress

fill cap over a portion of Parcel E at Hunters Point Shipyard in San Francisco, California. This cap was in response to a fire that occurred at the Parcel E Landfill in August 2000. A working design, including design drawings and specifications, based on Resource Conservation and Recovery Act (RCRA) landfill closure criteria, was completed in late-September 2000 and is currently being implemented at the site. Total con-

struction time for the landfill cap is expected to be 3 months and the actual duration of the construction activities, including provisions for weather conditions, is expected to be 5 months. Typically, it can take up 2 years to design, procure, and construct a RCRA landfill cap of this size. The intent of the design is to assure that the limits of the Parcel E Landfill "burn" area are capped with a system that limits infiltration into the landfill, withstands applicable loads (including seismic loads), and diverts water from its footprint. The cover system forms a barrier over the burn area and acts to prevent future com-

bustion by eliminating pathways for oxygen to reach the contents of the landfill.

The landfill cover system consists of the following components (from bottom to top):

- Two-foot thick minimum soil foundation layer
- Geosynthetic clay liner (GCL) layer consisting of a bentonite-high density polyethylene (HDPE) composite
- An 80-mil thick HDPE geomembrane layer

- Geocomposite drainage layer consisting of a geonet fused to a layer of geotextile filter fabric
- A 1.5-foot thick vegetative cover soil layer (that will be hydroseeded)

In total, approximately 130,000 in-place cubic yards of soil will be imported from local Bay Area sources to construct the two soil layers for the landfill cap. The three-geosynthetic layers will total approximately 1,800,000 square feet.

Construction began in mid-September, concurrent with the engineering design, and is expected to be completed early-March 2001. To expedite the schedule, field crews have frequently worked 12-hour days, 7 days a week. Transportation and off-site disposal of more than 80 truckloads of debris from the fire at the landfill, including vegetation, wood, soil, and concrete rubble, were completed in early-December 2000.

Perimeter air monitoring has continued on a 24-hour per day basis throughout the project to assure the safety of site workers as well as the surrounding neighborhoods. Monitoring of landfill gas in the subsurface began in late-December. This monitoring occurs on a weekly basis to detect the presence (if any) of combustion in the subsurface.

For more information please call Richard Mach (SWDIV) at 619-532-0913.

SWDIV RESTORATION EMPLOYEE OF THE YEAR 2000

MR. THOMAS MACCHIARELLA

The Chief of Naval Operations has named Thomas Macchiarella the SWDIV Restoration Employee of the Year 2000 for his contributions to the Navy Restoration program. Mr. Macchiarella has served as the SWDIV BRAC Environmental Coordinator (BEC) and Lead Remedial Project Manager (RPM) for Novato and Naval Station and Naval Shipyard Long Beach, California where he has coordinated the comprehensive Navy BRAC Installation Restoration Program issues with U.S. EPA Region IX, State of California, and local regulatory agencies.

Mr. Macchiarella's contributions have allowed SWDIV to better serve internal and external clients and consistently and efficiently manage and report work. He utilized, advocated, and demonstrated the value of web-based GIS systems to enhance analysis, decision-making, and communication. He proactively contributed to internal and external workgroups focused on improving the restoration process. For example, he has provided support and represented Navy Remedial Project Managers on the SWDIV BRAC Environmental Business Line Acquisition Strategy Team, enhanced Quality Assurance through the use of web-

based applications, and continuously contributed toward the improvement of the NORM/CTC work groups.

He made significant progress on site closures and program completion, moving all Long Beach BRAC sites to final remedy, executing Record of Decisions and drafting Land Use Covenants. To keep transfers moving, Mr. Macchiarella consistently took charge as the Lead RPM and BEC for all actions needed. He also expedited Interim Remedial Actions to support the Land Reuse Plans and schedules for all Novato and Long Beach BRAC Installation Restoration studies and cleanups.

He consistently demonstrated his leadership abilities and is valued as a key member of the Novato and Long Beach partnering team in addressing sensitive community issues as well as implementing innovative solutions. His considerable communication skills and collaborative approach has enhanced the relationship between the Navy, the regulatory agencies, and the public.

IDENTIFYING AN INVISIBLE BARRIER

During remediation of underground storage tank (UST) Site 653 at Naval Air Station (NAS) North Island, California, Tim Latas (SWDIV) and Brian White and Richard Wong (The IT Group) identified the presence of an invisible barrier that appears to be restricting migration of contaminants in groundwater. Understanding this invisible barrier is important to accelerating site cleanup and closure.

Both fresh and saline groundwater are present in coastal areas. When they coexist, they tend to remain separate based on differences in density and absence of forces that would mix the two. This boundary is referred to as the freshwater/saltwater interface (FWSWI). Because freshwater is less dense, it is usually found sitting atop (island condition) or pushing against the adjacent salt water (coastal conditions). Without physical mixing, the chemicals in these two different liquids reach equilibrium at their interface through diffusion.

An environment with fresh water atop salt water complicates the process of assessing the distribution and concentrations of volatile organic compounds (VOC) that are denser than water, such as cis-1,2-dichloroethene and vinyl chloride. This was the case at UST Site 653. VOCs were identified as migrating downward to about 30 feet below ground surface (bgs), but were not detected in the deeper wells at the site (46 feet bgs). The geology at the site consists predominantly of sand without discernable lithologic barriers that could restrict the downward migration of VOCs. Because salinity contrasts in groundwater were the only difference identified between the upper and lower wells at the site, The IT Group suggested that the FWSWI could be preventing downward migration of contaminants at the site.

The project team developed and employed methods to locate the FWSWI and to assess whether it was affecting downward migration of VOCs. The invisible FWSWI was detected by measuring the electrical conductivity of groundwater in wells screened above and below the FWSWI and in wells screened across the interface. Some of the highest contaminant concentrations atop the interface decreased by 80 percent merely 4 feet below the interface. Samples collected 10 feet below the FWSWI did not contain detectable VOCs. Based on the conductivity and analytical results, the

SWDIV RAC PROJECT INNOVATIONS PRESENTED AT INTERNATIONAL CONFERENCE

The IT Group recently made technical presentations on SWDIV Remedial Action Contract (RAC) project work at the Fifth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe (Prague 2000). The event was held in Prague, Czech Republic, on September 12 through 14, 2000.

Ms. Merry Coons, project manager for The IT Group at Naval Air Station (NAS) North Island in San Diego, presented her paper, "Thermal Enhanced Soil Vapor Extraction and Free Product Recovery." The paper describes site remediation currently under way at the Former Chemical Waste Disposal Area (IR Site 9) at NAS North Island. The presentation highlighted use of injected steam to facilitate removal of free product and enhancement of the removal rate of volatile organic compounds by a factor of five times over conventional soil vapor extraction.

Mr. Tom Perina, environmental engineer for The IT Group, presented two papers at the conference. The first paper, "Technical Comparison for Light Non-aqueous Phase Liquid (LNAPL) Recovery Methods and Estimation of Recoverable Volume," was

co-authored by Michael Cornell from SWDIV, and by Nick Amini, Jim DeWoody and Walt Grinyer of The IT Group. This presentation highlighted pilot testing and ongoing free product recovery efforts being conducted by the U.S. Navy to evaluate the performance of product recovery technologies at the former fuel farm at Naval Air Weapons Station (NAWS) China Lake. The technologies tested at the site included skimming, vacuum-enhanced skimming, total fluid extraction using pneumatic pumps, and pump and treat. The objective of testing was to estimate long-term floating product recovery rates, groundwater recovery rates, and cost-effectiveness of each method.

The second paper presented by Mr. Perina, "Evaluation of Remediation Techniques for a Site with Trichloroethene (TCE) Contaminated Aquifer under Complex Geological Conditions," was co-authored by Amena Atta of the Environmental Restoration office at Vandenberg Air Force Base, and by David Grainger, Dorota Rek, Jim DeWoody, Bruce Sibbet, David Daftary, and Mark Miller, of The IT Group. This presentation highlighted numerical modeling that demonstrated natural attenua-

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FWSWI appears to be an effective barrier to migration of VOCs. Figure 1 displays the relationship between the FWSWI and the distribution of vinyl chloride in groundwater at UST Site 653. SWDIV will take this important site feature into account in developing the final remedial options for this site.

This initial assessment of the FWSWI suggests that, if the FWSWI is present, it may inhibit migration of VOCs, depending on the density and

concentration of site contaminants and physical mixing forces. This concept should be considered for most Navy and Marine Corps installations to ascertain whether both fresh and saline groundwater exist below sites contaminated by VOCs on these installations because most of these installations are situated in coastal areas.

For more information, call Tim Latas (SWDIV) at 619-556-8940 or Richard Wong and Brian White (The IT Group) at 619-437-6326.

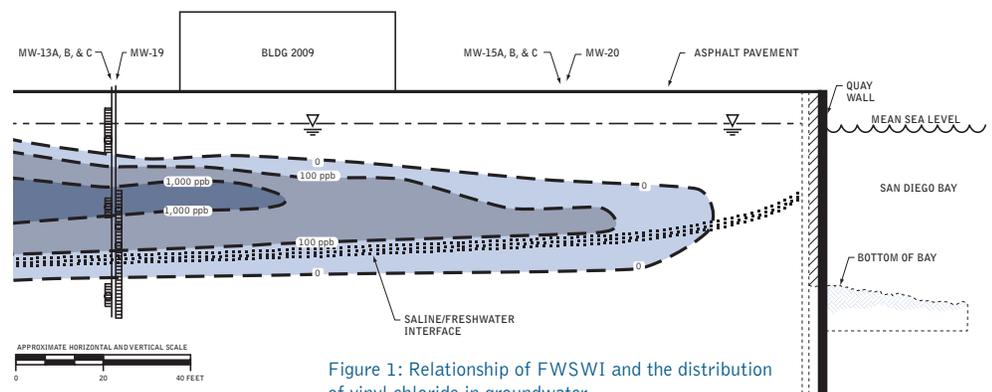


Figure 1: Relationship of FWSWI and the distribution of vinyl chloride in groundwater

STREAMLINED DATA COLLECTION IMPROVES CHARACTERIZATION WHILE REDUCING COSTS

The SWDIV Hunters Point Shipyard (HPS) team restructured its data collection and field characterization procedures in order to meet demanding schedules, at the same time reducing costs and providing faster access to analytical data. The team needed to complete excavations at 60 locations in less than 4 months, a task that involved collection of more than 2,000 final confirmation samples. Faced with the possibility of multiple mobilizations for the remediation effort, and considering standby time spent waiting for analytical results, the team needed to change its approach to meet the schedule. The result was a fundamentally different approach to post-remediation confirmation sampling: the confirmation samples were collected before remedial activities were implemented. In addition, the team took advantage of the latest database, programming, and Geographic Information System (GIS) technologies to automate functions such as field data screening and posting on site field maps that were previously completed manually.

The new approach to pre-excavation confirmation sampling has resulted in improved efficiency, reducing the overall time and costs usually needed to complete the job. Pre-excavation confirmation sampling allows for:

- Accurate cost estimates, since the limits of remediation are well defined
- Accurate project scheduling
- A reduction in sampling and remediation costs and project duration, since both activities are performed continuously in one mobilization effort and there is no standby time while awaiting laboratory results

- Additional costs savings and schedule compression, since the site delineation maps can be used for the post-construction site close-out reports
- Limitations to this sampling procedure are as follows:
- Because this approach is relatively new, the regulatory agencies may show resistance to pre-excavation confirmation sampling
 - Since the density of sampling locations for confirmation samples is much higher than that for site characterization, sampling costs might become elevated in areas where previous site characterization is limited
 - Since the rate of site delineation process slows over time, due to the limited number of remaining sites, the remediation schedule should adequately lag the pre-excavation confirmation sampling schedule

As mentioned above, improvements in data collection, including revisions to the chain-of-custody and data reporting procedures, have been automated. The chain-of-custody system was enhanced when the team integrated the U.S. Environmental Protection Agency's (EPA) Forms II Lite program with an Oracle database interface. Sampling information was entered in the Forms II Lite program, which generated sample labels and electronic chain-of-custody forms. This process reduces the potential for transcription errors and simplifies the quality-control process. Furthermore, this information is directly delivered into the Oracle database, making it possible to automatically compile the data as soon as it is available from the laboratories. Site maps that present analytical data for site delineations were produced within hours using a GIS platform, which is directly linked into the site environmental database.

This automation of the procedure has some important benefits:

- Site delineation maps can be produced within hours of receiving electronic data from the laboratory
- This system is not project-specific, and can be used on other projects at the site with little or no programming
- Since all information is immediately available electronically, inter-office project teams become much more efficient as everyone involved can have the project information at the same time
- Automating these functions reduces human error during various steps in the project

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GROUNDWATER SCREENING USING DIFFUSION

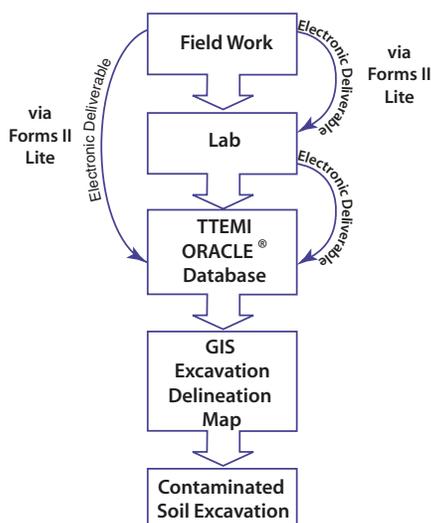
SAMPLERS REDUCES COSTS

The SWDIV project team has adopted low-density polyethylene (LDPE) diffusion samplers at Operable Unit 20, Naval Air Station (NAS) North Island to collect groundwater samples within the plume of dissolved volatile organic compounds (VOC). The diffusion samplers are allowed to equilibrate inside the monitoring well for a minimum of 7 to 10 days before they are retrieved and transferred into the appropriate laboratory container for analysis.

Diffusion samplers have been shown to be a cost-effective sampling method for long-term monitoring of VOCs in groundwater. The diffusion sampler is constructed of 2-inch diameter LDPE "lay-flat" tubing. The tubing is cut to 18-inch lengths, filled with deionized water, and heat-sealed at both ends. The samplers cost less than \$2 to construct versus the cost to purchase dedicated bladder pumps — at approximately \$500 each. The diffusion samplers require significantly less time for installation and sampling as compared with low-volume sampling. The diffusion samplers are suspended from a weighted line within the screened portion of a monitoring well. This construction allows straightforward vertical profiling of the impact of VOCs on an aquifer.

The solubility characteristics of VOCs in groundwater allow diffusion of the compounds through the polyethylene membrane. Other contaminants of concern, such as semivolatile organic compounds and metals, do not diffuse through the membrane because of their higher or lower solubility values. Less soluble compounds such as metals tend to accumulate at the membrane and do not penetrate, while more soluble compounds such as methyl tert-butyl ether tend to migrate around the membrane and do not fully diffuse into the sampler. Therefore, the technology is primarily limited for VOC sampling. The U.S. Geological Survey is currently developing a guidance document for use of the diffusion sampling technology.

For further information, please call William E. Collins (SWDIV Remedial Project Manager), at 619-556-9901, e-mail at collinswe@efds.w.navy.mil, or Brian C. Peters (The IT Group), at 619-437-6326 X 316, e-mail at bpeters@theitgroup.com.



U.S. NAVY RECOGNIZED FOR USING LOCAL SMALL BUSINESSES

The U.S. Navy was recently recognized for its success in using the services of local small businesses to provide environmental services that facilitate realignment and closure of Naval bases in northern California. Tetra Tech EM Inc. (Tetra Tech) and The IT Group, the Navy's CLEAN and RAC contractors, were specifically recognized for their achievements in seeking out local small businesses on behalf of the Navy in the Bay Area.

On October 24, 2000, a banquet was held at A.J. Toppers, Oakland Marriott Hotel to honor former Congressman Ronald V. Dellums and Congresswoman Barbara Lee for their contributions to mil-

itary base conversion and economic renewal of communities in the Bay Area. Tetra Tech and The IT Group were invited to attend the banquet, and each received plaques from the East Bay Conversion and Reinvestment Commission (EBCRC) in recognition of their commitment and continued support for economic development and job creation through seeking out local small businesses to provide environmental services for realignment and closure of local Naval bases in the Bay Area.

Tetra Tech and The IT Group are proud of their success in using small businesses for significant portions of their CLEAN and RAC contracts. As

shown on Tables 1-3, Tetra Tech's CLEAN contract (N62474-94-D-7609) and The IT Group's RAC contracts (N62474-93-D-2151 and N62474-98-D-2076) have exceeded all percentage goals set for utilization of small businesses, small disadvantaged businesses, and women-owned small businesses for their contracts.

As shown on Table 1, through September 30, 2000, under Tetra Tech's CLEAN contract (N62474-94-D-7609), 46 percent of all sub-contracted work was allocated to small businesses, well exceeding the goal of 35 percent. This translates to over \$37.3 million of work for small businesses, primarily in the Bay Area, with over \$24 million going to small disadvantaged businesses and \$7 million going to women-owned small businesses.

For the same period under The IT Group's RAC contract (N62474-93-D-2151), the small business dollar award amount was \$47.8 million, which is well beyond the goal of \$35 million. The IT Group's dollar award amount to small disadvantaged businesses is presently \$29.9 million, more than double the goal of \$12.5 million. The dollar amount awarded to women-owned small businesses was \$8.7 million, which exceeds the goal of \$5 million by almost \$4 million.

For more information, please call Richard Selby (SWDIV) at 619-532-0761 or Kathleen MacDougall (Tetra Tech) at 415-543-4880.

PERCENTAGE OR WORK ASSIGNED TO SMALL BUSINESS

Utilization as of Sept 30, 2000 Goal

Table 1
Tetra Tech Clean II Contract No N62474-94-D-7609

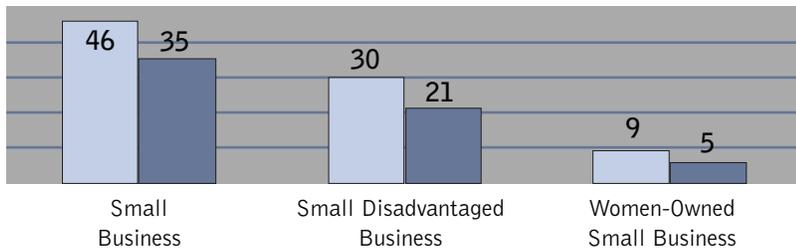


Table 2
IT Corporation RAC Contract No N62474-93-D-2151

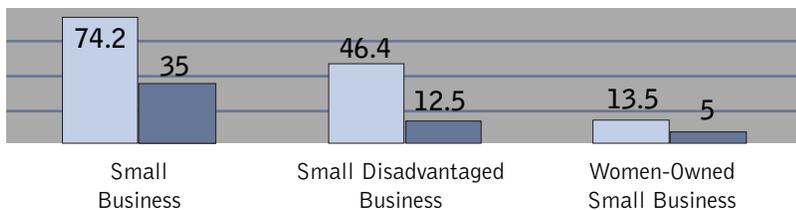
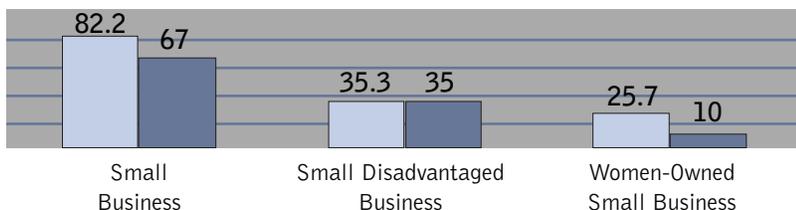


Table 3
IT Corporation RAC Contract No N62474-98-D-2076



**D I O X I N N A M E D
A K N O W N
C A R C I N O G E N**

In an addendum to the Ninth Report on Carcinogens from the National Toxicology Program, 2,3,7,8-tetrachlorodibenzo-p-dioxin, also known as dioxin, is now listed as a known carcinogen. The listing of dioxin in the "known to be a human carcinogen" category is based on evidence from studies on humans that indicate exposure to dioxin can cause cancer. The report does not assess the conditions under which dioxin may pose a risk. Dioxin is no longer produced commercially, but is still a byproduct of many industrial processes. The Report on Carcinogens is available at <http://ntp-server.niehs.nih.gov/NewHomeRoc/AboutRoC.html>.

NAPALM*Continued from page 1*

canisters are processed through a waste separation facility constructed on one of the storage sites at Fallbrook. Once separated at Fallbrook, the three waste streams — wood crates, napalm, and aluminum from the canisters — are transported to Texas, Louisiana and Tennessee for treatment and recycling.

At the Fallbrook waste separation facility, the plant removes the 500- or 750-pound torpedo-shaped canisters from the wood crates used to store them, dismantles the crates, punches the canisters to drain the napalm, and then shreds aluminum canisters before the chemical, wood, and aluminum components are shipped out of state for recycling. All napalm canister processing is conducted within an automated, state-of-the-art processing facility that maintains a negative-pressure, nitrogen-filled environment in order

that all vapor releases may be captured and treated before release to the environment.

The crates are shredded and transported by truck and rail to Tennessee to be burned to create steam for use in an adjacent rubber hose manufacturing facility. The napalm is blended with toluene to create a blended specification fuel used to regenerate spent sulfuric acid. The aluminum is washed and sent to a smelter — this high grade aluminum is used to build aircraft landing gear and for other applications. The Navy is proud that the plan for recycling or recapturing the heating value of all waste streams was successfully implemented.

EXCELLENT SAFETY AND ENVIRONMENTAL RECORD

The project has enjoyed an excellent safety record at the Fallbrook facility, with no transportation spills and no significant emissions detected in air monitoring along the transportation route, and

at out-of-state processing facilities. More than 700 sensors and a state-of-the-art man-machine interface at the Fallbrook facility monitor environmental and safety indicators at the plant. With the cooperation of the U.S. Marine Corps, the napalm is transported to a railhead on Camp Pendleton — all on federal property, minimizing the impact to the local community. The Louisiana Department of Environmental Quality has praised the Navy for its management of the napalm removal and recycling, such as implementing special safety requirements for any facilities involved in processing of any of the waste streams.

The Navy also worked with the U.S. Fish and Wildlife Service (FWS) to relocate the Stephens' kangaroo rat, an endangered species that had made its home in the napalm crates, and to protect its burrows.

For more information, call J.D. Brigance (SWDIV) at 619-532-2635.

A N N O U N C E M E N T S**FEDERAL ENVIRONMENTAL ENGINEER OF THE YEAR NOMINATIONS**

The Conference of Federal Environmental Engineers (CFEE) is accepting nominations for its Federal Environmental Engineer of the Year. Nominations are open to federal civilian and military environmental engineers and recent retirees. Additional information and the nomination form are available at: www.aec.army.mil/prod/usaec/eq/programs/awards.htm.

NEW ANALYTICAL METHODS SOON TO BE APPROVED

EPA is approving updated versions of numerous analytical methods for analysis of chemical, radiological, and microbiological pollutants and contaminants in wastewater and drinking water. Previous versions of these analytical methods are still approved. For more information, email Dr. Maria Gomez-Taylor, EPA Office of Science and Technology, at Gomez-Taylor.Maria@epa.gov.

NATIONAL PRIMARY DRINKING WATER REGULATIONS FOR ARSENIC

A prepublication version of the final arsenic rule is now available. The final rule revises the current maximum contaminant level from 50 micrograms per liter ($\mu\text{g/L}$) to 10 $\mu\text{g/L}$ and sets a maximum contaminant level goal of zero for arsenic in drinking water. The compliance options include use of point-of-use and point-of-entry treatment in some situations. EPA intends to issue guidance on point-of-use and point-of-entry applications. For more information, call the Safe Drinking Water Hotline at 1-800-426-4791.

NEW AIR EMISSION STANDARDS FOR ENGINES AND DIESEL FUEL

The U.S. Environmental Protection Agency (EPA) is finalizing an emissions standard for particulate matter (PM) from new heavy-duty engines. The new standard is 0.01 grams per brake-horsepower-hour (g/bhp-hr), and will take effect for diesels in the 2007 model year. In addition, standards for nitrogen oxides of 0.2 g/bhp-hr and for non-methane hydrocarbons of 0.14 g/bhp-hr for heavy-duty diesel engines will be phased in between 2007 and 2010.

Beginning June 1, 2006, refiners will be required to start producing diesel fuel for use in highway vehicles with a maximum sulfur content of 15 parts per million. This fuel standards program offers refiners a combination of options to ensure a smooth transition to low sulfur highway diesel fuel and includes a temporary compliance option and credit for early compliance.

IMPLEMENTATION GUIDANCE FOR DRINKING WATER REGULATION FOR RADIONUCLIDES

EPA is soliciting comments on the Draft Implementation Guidance for the National Primary Drinking Water Regulation for Radionuclides on December 7, 2000, in the Federal Register (65 FR 76708). The document contains: an explanation of the requirements of the rule, implementation timelines, guidance for determinations on violations, and definitions of significant noncompliance. The guidance document describes the new standards for uranium, as well as the revisions to the radionuclides monitoring framework. Comments must be submitted by March 30, 2001. For more information, please contact Ed Thomas, Office of Ground Water and Drinking Water, EPA, at (202) 260-0910 or thomas.edwin@epamail.epa.gov.

INTERNATIONAL CONFERENCE

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tion as ineffective in preventing the discharge of contaminants to the Pacific Ocean through naturally occurring springs along the coastline. The great depth to the water table, steep gradient of groundwater flow, low saturated thickness, ongoing launch operations, and ecological sensitivity of the site represented technical difficulties associated with the remediation efforts. The presentation also described pilot testing of various remediation technologies, including vacuum-enhanced extraction and horizontal well extraction that is currently in progress at the site.

ABOUT THE CONFERENCE

The Prague 2000 symposium was sponsored by Florida State University and the U. S. Department of Energy, and was supported by the following organizations:

- Czech Technical University in Prague
- Institute for Ecology of Industrial Areas (Poland)
- U. S. Environmental Protection Agency (U.S. EPA)
- North Atlantic Treaty Organization (NATO) Science Committee, Committee on Challenges of Modern Society (Belgium)
- Technical University of Budapest (Hungary)
- Vernadsky Institute of Geochemistry and Analytical Chemistry (Russia).

Keynote speakers included: Dr. Milos Kuzvart, Minister of the Environment for the Czech Republic, Dr. Carolyn L. Huntoon, Assistant Secretary Office of Environmental Management with the U.S. Department of Energy, Dr. Deniz Beten, NATO CCMS Program Director, and Dr. Walter W. Kovalick, Jr, Director of the U.S. EPA Technology Innovation Office.

For more information please contact William E. Collins (SWDIV) at 619-556-9901, Michael J. Cornell (SWDIV) at 619-532-4208, Merry Coons (The IT Group) at 619-437-6326, or Tom Perina (The IT Group) at 909-478-1207.

RODS SIGNED

Continued from page 2

The ROD for Operable Unit-1 at MCAS Yuma, Arizona, was signed in October 2000. The ROD addressed four groundwater plumes (Areas 1, 2, 3, and 6) contaminated by chlorinated hydrocarbons (CHC). The Area 1 plume is more than a mile long, beginning near the center of the facility and terminating near its northwest boundary. The remedy selected is air sparging/soil vapor extraction (AS/SVE) at the most contaminated portion of the plume. The AS/SVE system has been in operation for about a year and has already removed approximately 57 pounds of contaminant mass. Vertical circulation treatment of groundwater is being used to reduce concentrations of CHCs at the facility boundary and to prevent further off-site migration

of CHCs. The selected remedy for the plumes at Area 2, 3, and 6 is monitored natural attenuation. This remedy was selected because the plumes are limited in extent and most of the contaminant concentrations are at levels close to the MCLs.

For further information on any of these RODs, please call Content Arnold (SWDIV, El Toro and Tustin) at 619-532-0790, or Mike Cornell (SWDIV, Yuma) at 619-532-4208.

- aside to set up the information tracking system
- Not all laboratories are capable of accepting electronic chain of custody forms
- The field labor effort is increased, since all information is electronically developed in the field; however, the overall labor effort is reduced

These changes to data collection, confirmation sampling procedures, and data manipulation represent a fundamental change in the overall methodology for remediation sites at HPS, and elsewhere. The changes have resulted in drastic cost savings and increased project efficiencies, and have enabled the Navy to meet its demanding schedules.

Questions or comments can be directed to Richard Mach (SWDIV) at 619-532-0913, or Mike Wanta (TtEMI) at 415-222-8241.

DATA COLLECTION

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As with any new process, there are certain complexities, which need to be given special consideration, as follows:

- There needs to be adequate planning and time set

MARE ISLAND

Continued from page 1

then signed a Consent Agreement. The Consent Agreement is one piece of the early transfer package that will eventually be sent to the Governor of California for approval.

The last portion of the ceremony was a presentation of a City Proclamation to former Navy employees Mr. Dennis Kelly, currently with Tetra Tech, and Mr. Ron Howard, formerly with SWDIV. The proclamation recognized Mr. Kelly's and Mr. Howard's assistance in achieving the transfers, specifically their years of service working with city representatives and for their various contributions since Mare Island was designated a BRAC base. Mr. Kelly is currently working with SWDIV to facilitate the other two early transfers at Mare Island.

Developers and Vallejo officials hope they will

transform the former Mare Island Naval Shipyard into a dynamic residential, commercial, and light industrial center. The plan for Mare Island will combine adaptive reuse of some existing facilities as well as new construction. The first phase of the conversion calls for turning more than 600 units of existing military housing into 300 condominiums. Developers then plan to convert much of the rest of the island into space for small- and mid-size businesses. Open space will be preserved and wetlands on parts of the island will be protected. The island environment is an ideal combination of the elements necessary to create a total community, with places to work and live



City of Vallejo's Gill Hollingsworth and Major Anthony Intintoli (left) present Navy employee Dennis Kelly (right), currently with Tetra Tech, with a City Proclamation recognizing his contributions to the City

with parks, open space, and wetland preserves.

For more information, please call Mr. Larry Douchand (SWDIV) at 619-532-0990, or Dr. Michael Foster (Tetra Tech) at 619-525-7188.

UPCOMING EVENTS



The 11th Annual West Coast Conference on Contaminated Soils, Sediments, and Water

19-20 March 2001, San Diego, CA

The Association for the Environmental Health of Soils (AEHS) and the Navy will host the 11th Annual West Coast Conference on Contaminated Soils, Sediments, and Water. The conference will provide a forum to facilitate the exchange of information on technological advances, new scientific achievements, and the effectiveness of existing environmental regulation programs. The event is designed to provide attendees with a strong and diverse technical program developed to meet the changing needs of the environmental field. The conference will bring together a varied group of environmental professionals who represent the broad spectrum of professions, including academia, industry, consulting, engineering, and the regulatory agencies.

To learn more, visit the web site at www.aehs.com or contact Marc Nascarella (AEHS) at (415) 549-5170 or by email at marc@aehs.com.

UXO/Countermine Forum

9-12 April 2001, New Orleans, LA

The Defense Environmental Network and Information Exchange (DENIX) is hosting an UXO/Countermine forum in New Orleans, Louisiana. The forum will examine the way the business of unexploded ordnance (UXO) and countermines is changing and how to meet the challenges and make the most of the benefits of these changes. The forum will include exhibits and technical sessions on the latest technologies and technical presenters who are the best in their areas of expertise. In addition, there will be preconference sessions on business development in the UXO/Countermine arenas.

For registration and information, contact Charlotte Gaylon at (888) 808-5303 or by email at TheForum@tva.gov.

Environmental Remediation and Ecosystem Restoration Conference

16-20 April 2001, Portland, OR

The U.S. Army Corps of Engineers is sponsoring an Environmental Remediation and Ecosystem Restoration Conference, "Environmental Stewardship: We Proceed On." The conference will focus on innovations in the fields of hazardous, toxic, and radiological waste. In addition, the conference will encourage interaction among professionals in the related fields of environmental remediation and ecosystem restoration.

Information and registration is available on-line at <http://hq.environmental.usace.army.mil/edw2001/>, or

contact Mike Klosterman of U.S. Army Corps of Engineers at (703) 428-7337 or by email at Michael.J.Klosterman@HQ02.usace.army.mil.

Tri-Service Environmental Technology Symposium

June 2001, San Diego, CA

The Tri-Service Environmental Service Center Commanders Committee will host the fourth Tri-Service Environmental Technology Symposium. The theme will be "Environmental Technology: Support the Mission, Sustain the Environment." The symposium will focus on the military's continued emphasis on protecting resources while maintaining readiness and supporting military operations, installation management, and material development. Department of Defense personnel, as well as other federal agencies, federal contractors, academia, and industry are invited to attend.

For more information and on-line registration, visit the website at www.ets-2001.com.

Navy Pollution Prevention Conference

19-21 June 2001 Arlington, VA

Sponsored by the Chief of Naval Operations and coordinated by the Naval Facilities Engineering Service Center, the theme of this year's Navy Pollution Prevention Conference is "Navy P2, Building on Success." The conference will provide a forum to raise issues and share success stories and lessons learned on all aspects of pollution prevention. Attendance is limited to government employees and contractors with current Navy contracts. Register by June 5, 2001, on-line at <http://web.dandp.com/n45/conferences/p2/> or by submitting a completed registration form via e-mail to adauterm@dandp.com or fax to (703) 920-7177. Forms received after June 5 will be processed at the conference as walk-in registrations.

For more information, please contact Kathi Jones at DSN 551-4899 or (805) 982-4899 or via email at joneskf@nfesc.navy.mil.

Environmental Restoration and Compliance Training

2001, Various Locations

The U.S. Army Corps of Engineers offers a series of Environmental Restoration and Compliance Training sessions for 2001. Visit the web site at <http://pdsc.usace.army.mil> for course descriptions and dates.

For more information on the content or dates, contact Joy Rodriguez of the Professional Development Support Center at (256) 895-7448.

EDITORIAL INFORMATION

The CFS Group, a department of Tetra Tech EM Inc., edits Synergy in cooperation with SWDIV. The editors invite articles on environmental solutions for sustainability, including technology innovations, lessons learned, success stories, community relations, and conferences and training events.

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 tel: 619-532-0770/2289
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SWDIV Newsletters are available at:
www.efdswnavfac.navy.mil/pages/Envrnm1.htm