Spring 2001

RPM News

▲ Remedial Project Manager News ▲

"Communicating Navy Installation Restoration Program News and Information Among All Participants"

In This Issue

Innovative Field Technique Used at NSCS Athens, Georgia

By SOUTHNAVFACENGCOM
TetraTech NUS, Inc.

Executive Summary

An innovative field-screening method is available to profile soil conductivity and volatile organic compounds (VOCs) in soil and groundwater. The Membrane Interface Probe/Soil Conductivity (MIP/SC) system (developed by Geoprobe®) assisted in the characterization of a low-level dissolved-phase gasoline plume adjacent to the Naval Supply Corps School (NSCS) in Athens, Georgia. The technique provided real-time results, which assisted in the selection of optimal soil and groundwater sampling locations, thereby reducing the overall number of samples required.

Figure 1: MIP/SC probe in operation at NSCS Athens.

Project Details

Soil and groundwater contamination originated from previously leaking pipes associated with underground storage tanks (USTs) located at the Navy Exchange Gas Station. Groundwater contamination migrated down gradient and despite a remedial action to treat both soil and groundwater, legacy contamination remains in relatively low-permeability soil approximately 200 to 300 feet from the source area.

The MIP/SC system was used to collect continuous vertical profiles of VOC data and soil conductivity at the site. Using direct push technology (DPT), the 1.5-inch-diameter probe is driven into the ground at a rate of one foot per minute (Figure 1).

The MIP portion of the probe measures VOCs by heating the soil and/or water to temperatures between 80 and 250 degrees Celsius. The VOCs diffuse across a membrane and into a carrier gas. The gas is then analyzed, using a combination of a flame ionization detector (FID), a photo ionization detector (PID), and an electrical conductivity detector (ECD) (for chlorinated VOCs only) in a laboratory-grade gas chromatograph at the surface.

The SC portion of the system uses a dipole measurement arrangement in which an alternating current is passed from the center of the probe to the probe body. The voltage response of the soil to the current is measured across these same two points. Lower conductivities indicate sands (high-permeability material), while higher conductivities indicate silts and clays (low-permeability material). The continuously measured results are captured by data-logging software and displayed in real time as the probe is advanced.

continued on page 2

RPM NEWS
Remedial Project Manager News

Published By
NFESC

Using Appropriated Funds

Commanding Officer:
Captain Robert J. Westberg, Jr.

Environmental Department Head:
Stephen E. Eikenberry

Information Management Branch:
Mr. Chuck Reeter

Environmental Engineering Consultant:
805-982-4858

Editors:
805-982-5462

Graphic Design:
805-982-3843

“Innovative Field Technique”
continued from page 1

At the Athens site, MIP/SC testing was performed at 14 selected locations in the suspected area of the plume. Figure 2 illustrates the MIP/SC results showing the horizontal and vertical location of the plume along the centerline of groundwater flow. The presentation of the soil conductivity results with the MIP results (Figure 2) indicates that the plume is being contained in place by low-permeability soil. The data generated from the MIP/SC system and media sampling enabled TetraTech NUS, Inc. to strategically locate three additional monitoring wells at the point of highest subsurface contamination.

Cost Savings Measures

By providing real-time data on the extent of soil and groundwater contamination, soil sample locations and groundwater monitoring points were selected more accurately and the number of sample locations was optimized. This resulted in cost savings from reduced sample collection, well installation, and increased confidence that the contamination limits have been established in fewer rounds of field investigation.

Conclusions and Lessons Learned

Overall, the MIP/SC system was beneficial to this investigation because it provided detailed real-time information during the field investigation. Some additional benefits are:

- Accurate headspace readings in saturated and unsaturated conditions.
- Identification of the high- and low-permeability material that can be quantified.
- Use of conventional DPT methods to drive the probe.
- Good correlation with a hand-held FID, but providing greater detail.
- Useful for many remediation projects (e.g., identification of soil intervals that would benefit most from enhanced bioremediation).

However, there are a few drawbacks to the MIP/SC system that require additional evaluation:

- The MIP/SC system is more costly to operate than hand-held instruments; therefore, a cost analysis should be done for each project.
- The results are qualitative for contaminants and will require confirmation sampling to obtain quantitative results.
- A separate DPT hole is required for sample collection, meaning additional sample collection time.
- The system is in the early stages of regulatory approval as a media delineation technique for UST programs.

For further information, please contact:

Southern Division, Naval Facilities Engineering Command
Phone: 843.820.5583

TetraTech NUS, Inc.
Phone: 803.649.7963

TetraTech NUS, Inc.
Phone: 412.921.8146

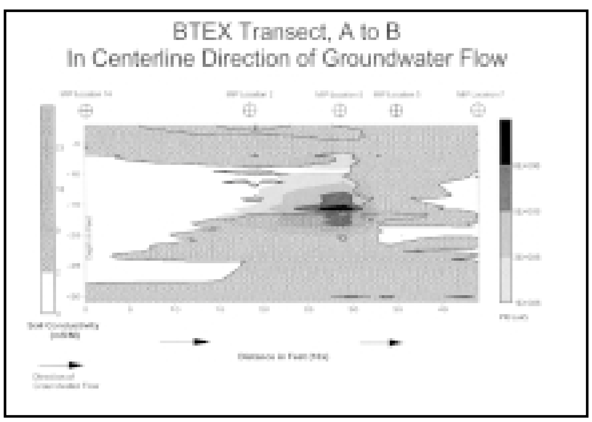


Figure 2: Graphic display of MIP/SC results from NSCS Athens.

Partnering + DQOs = Cost Effectiveness NIROP Fridley, Minnesota

By Mike Maughon and Mark Perry

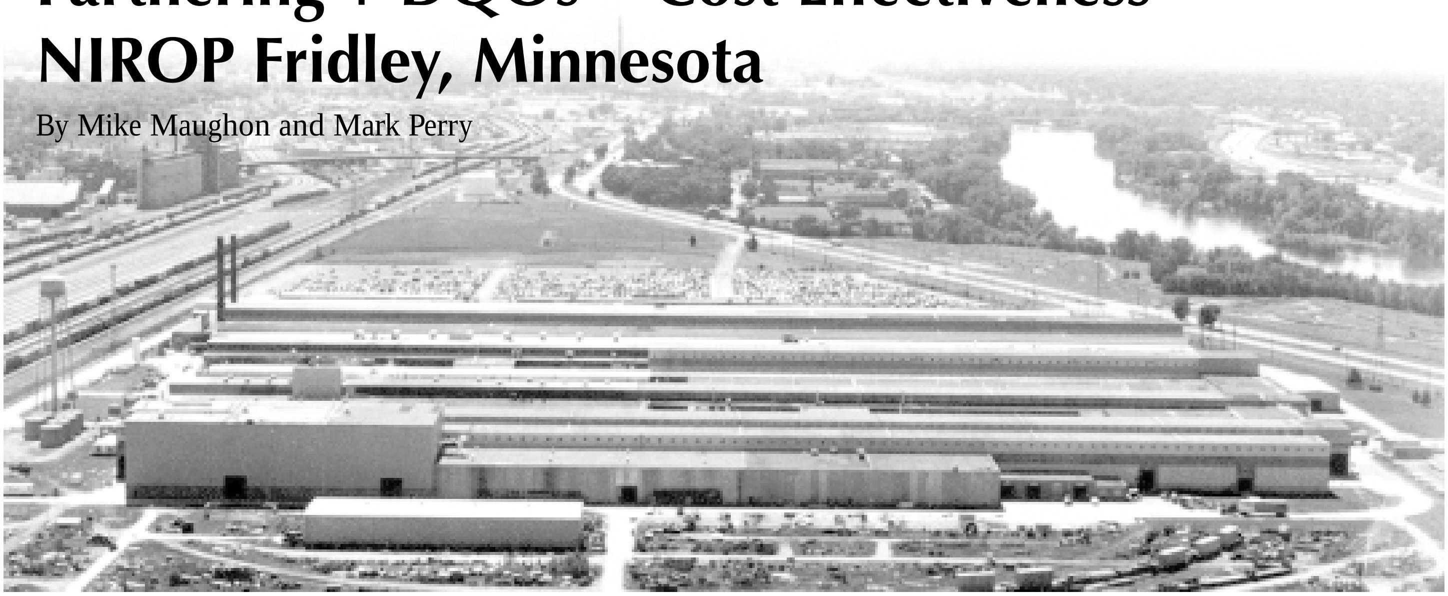


Figure 1: Main plant, NIROP Fridley, Minnesota.

After years of difficult technical discussions about the most appropriate investigative approach, the Navy, Environmental Protection Agency, and State of Minnesota agreed to work towards a common goal - letting cooperation, openness, team spirit, and innovation guide the way.

Formed in December 1996, the Naval Industrial Reserve Ordnance Plant (NIROP) Fridley Partnering Team consists of the Navy, the U.S. Environmental Protection Agency (USEPA), and the Minnesota Pollution Control Agency (MPCA), and has produced several key successes for the NIROP Superfund Site.

As a result of their tremendous efforts, the Tier I Partnering Team received a 1998 Governor's Commendation for the dedicated cleanup of the NIROP Superfund Site in Fridley, Minnesota.

One of those successes was the implementation of the Data Quality Objectives (DQO) process to develop an efficient sampling plan for the Operable Unit (OU) 3 Remedial Investigation (RI). OU3 consists of the main plant building (approximately 50 acres in size as shown in Figure 1). Seventy-five potential source areas of concern (AOCs) were identified inside the building. Past investigation practice at the site would have required taking soil samples on four sides of each AOC (a minimum of 300 locations) and installation of a shallow, intermediate, and deep monitoring well (3 wells) at several AOCs (approximately 75 wells) to delineate the extent of soil and groundwater contamination from each of the AOCs. Instead, using the DQO planning process, the OU3 investigation was reduced to the collection of unsaturated soil and shallow groundwater at 48 locations using a direct-push method and installation of a nest of shallow, intermediate, and deep monitoring wells at only six locations (totaling 18 wells) to assess the environmental impacts to the OU as a whole. This innovative and cost-effective sampling strategy was based on clarification of the site conceptual model and risk exposure scenarios and the assumption that the sampling of AOCs associated with similar plant operations would yield information valid for estimating chemical source potential at other AOCs within the same grouping. The assumption was verified by evaluating the variability of data within groups of AOCs.

Partnering plus DQOs ensured that the sampling strategy was adequate and appropriate. DQOs helped focus the sampling strategy on the collection of enough of the right data necessary to complete the remedial investigation and remedy selection while avoiding the collection of unnecessary and redundant data. This has been proven to be the case as the project nears the proposed plan/record of decision phase with no supplemental sampling required for decision making.

Investing the time and effort in partnering and the structured DQO planning process expedited the site characterization by more than a year and resulted in a direct cost savings to the Navy of over $1,000,000 in analytical costs, well construction costs, and oversight. This is one more example of how the DQO process can be used as a logical framework for resolving difficult technical challenges while meeting the common goal of the partnering team — providing cost-effective, timely site restoration that is protective of human health and the environment.

For further information, you may contact:

Southern Division, Naval Facilities Engineering Command
Phone: 843.820.5587
E-mail:

TetraTech NUS, Inc.
Phone: 412.921.7217

Advanced Oil Spill Cleanup Equipment

The Naval Facilities Engineering Service Center (NFESC) is performing test and evaluation (T&E) of advanced oil spill cleanup equipment. The goal is to identify skimmer technologies that are suitable for rapid response skimming of low viscosity, light weight hydrocarbons within harbors, inland waters, and sounds at varying skimming speeds and surface conditions. This effort supports the Naval Facilities Engineering Command (NAVFAC) Oil Spill Response Program. There is a need to improve the performance of the existing Navy skimmer inventory, and test new skimming equipment prior to procurement and distribution to naval shore facilities.

Private industry equipment manufacturers have traditionally produced oil spill response equipment that is suitable for cleanup of large volume crude oil spills at sea. However, the majority of oil spills that occur at naval shore facilities within harbors, inland waters, and sounds (navigable waters) are less than 1000 gallons, less than 1mm thick, and involve low viscosity, light weight hydrocarbons such as diesel fuel marine (DFM) and JP-5. Therefore, private industry performance data (generated from crude oil cleanup) may not accurately estimate skimmer performance for the typical oil spill at a naval shore facility.

NFESC performance-tested five manned oil skimmers during FY00 at the Department of the Interior Minerals Management Service, Ohmsett Facility in Leonardo, New Jersey. Three to four additional skimmer performance tests are tentatively scheduled for FY01. Ohmsett is located on Naval Weapons Station Earle, and is the only facility in North America that allows for full-scale testing with oil spills in a controlled, simulated at-sea environment. The five skimmers performance tested during FY00 were:

- Special Manufacture Vessel Environmental (SMAVE) Standard 4 Oil Skimmer
  - Suction current with weir
- Kvichak/Marco Class 1 Rapid Response Skimmer (RRS) (current Navy inventory)
  - Sorbent lifting belt
- Willard/Action Petroleum RRS (current Navy inventory)
  - Sorbent submersion belt
- Kepner Plastics Fabricators, Inc. Sea Vac 660 Heli-Skimmer System
  - Cascading weir
- JBF420/Dynamic Incline Plane (DIP) 400 Oil Skimmer
  - Submersion moving plane

All performance testing was conducted in accordance with American Society for Testing and Materials (ASTM) Standard F 631-93, "Standard Guide for Collecting Skimmer Performance Data in Controlled Environments". Skimmer performance tests were conducted in calm (no waves) and protected water (6" and 12" waves) conditions, and were designed to simulate recovery operations while encountering a 1mm slick thickness of DFM or JP-5 at vessel speeds ranging from 0.5 to 2.5 knots.

Throughput Efficiency (TE), Recovery Efficiency (RE), and Recovery Rate (RR) are the parameters used to evaluate and compare skimmer performance, and are defined as follows:

- TE is the ratio of the total volume oil recovered to the total volume of oil encountered, expressed as a percent
- RE is the ratio of the total volume of oil recovered to the total volume of fluid (oil + water) recovered, expressed as a percent
- RR is the total volume of oil recovered to the total oil recovery time, in gallons per minute

Figure 1 shows a typical performance test setup at Ohmsett.

Figure 1: A typical performance test setup at Ohmsett.

Figures 2 through 4 compare the TE, RE, and RR respectively for the five skimmers tested in calm water conditions during FY00. The performance of all five skimmers progressively decreased as wave size increased in the protected water conditions. Performance goals for the project are to identify equipment with a TE and RE near 90%, and a recovery rate greater than 10 gallons per minute in calm water at vessel speeds ranging from 0.5 to 2.5 knots.

Several initiatives have been identified to improve skimmer performance in DFM and JP-5 as a result of the FY00 T&E. Examples of planned work in FY01 that will help to identify future equipment procurement options, and have potential for improving current Navy/Marine Corps skimming capabilities are:

- Modifying the skimmer belt design to increase the performance of existing Navy/Marine Corps RRS. Modified skimmer belt designs can be easily evaluated and compared to FY00 baseline test data, and provided to field activities at low cost if test results are favorable.
- Identifying new commercial skimming units that are suitable for retrofit/ installation on existing Navy/Marine Corps RRS. Skimming unit retrofits may also extend the service life of the present RRS inventory at reasonable cost.
- Collaborating with equipment vendors during FY01 testing to improve the performance of selected skimmers with favorable FY00 test results. Skimming vessels that provided significant performance in DFM and JP-5 may be operated and maintained by selected field activities, and will be potential candidates for future equipment procurement. NFESC and the field activities will evaluate skimmer performance, maintainability, and suitability in a Navy/Marine Corps operational environment.

For more information or further interpretation of results for this project, please contact:

Naval Facilities Engineering Service Center
Code 421
Phone: 805.982.2644

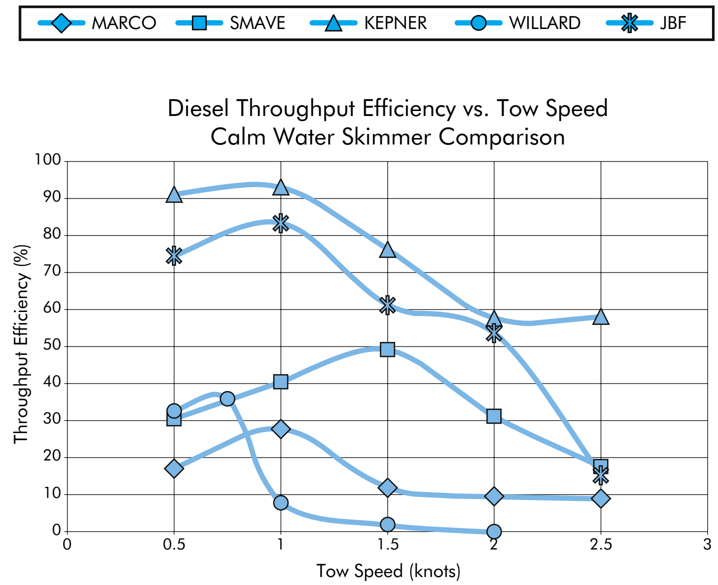


Figure 2

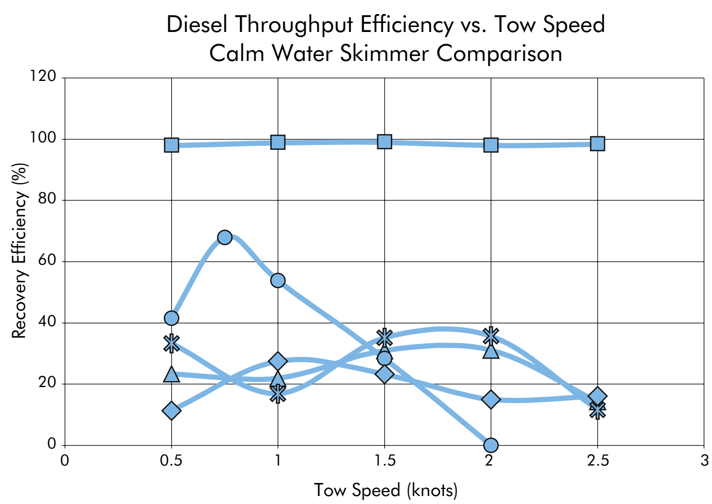


Figure 3

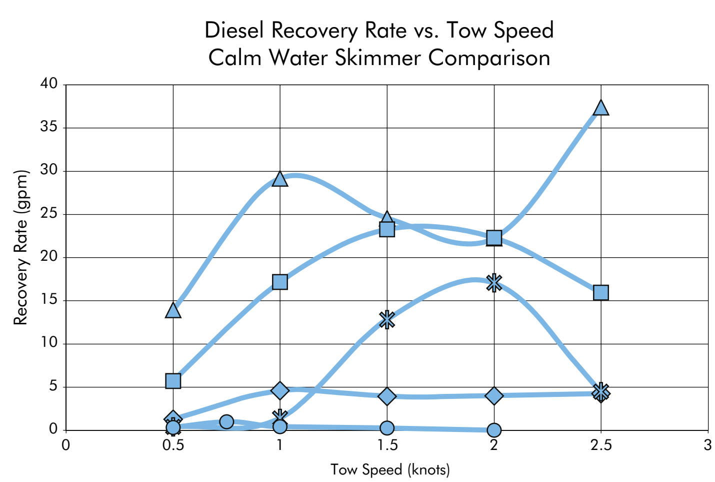


Figure 4

Direct-Push Versus HSA Drilled Monitoring Wells

Direct-push monitoring wells are typically considered "temporary" monitoring points, since detailed comparisons with conventional drilled hollow stem auger (HSA) monitoring wells have not previously been conducted. A comparison between groundwater monitoring alternatives (direct-push installed monitoring wells and HSA drilled monitoring wells) was conducted on the leading edge of a methyl tertiary-butyl ether (MTBE) plume located in a shallow semi-perched aquifer. The purpose of this effort was to determine whether representative chemical and water table data could be generated using properly designed direct-push monitoring wells. If accepted by regulators, these devices can help save tremendous amounts of money and time for sampling and monitoring efforts.

The performance evaluation of selected direct-push microwell designs and conventional HSA drilled wells compared sample representativeness, limited hydrogeologic observations (potentiometric), and long term installation and monitoring costs. In addition, steps taken to properly design, construct, and sample direct-push monitoring wells yielded site-specific design criteria required for future work at the site.

The main regulatory concerns regarding the use of direct-push microwells for long-term groundwater monitoring include the following:

1. Filter pack materials (for preventing sediment entry) are either not used or are not based on grain size distribution of the formation in contact with the well screen section;
2. Minimum annular sealing requirements (for preventing vertical migration into the screen section) based on drilled well specifications may not readily apply to direct-push approaches; and
3. Annular sealing may not be complete for pre-packaged well screen devices and tremmied filter pack applications under certain geologic conditions.

Sample representativeness can be affected by vertical migration of contaminants (cross contamination) caused by incomplete annular sealing of the well structure with a filter pack, whether a drilled well or a direct-push well. Vertical cross contamination is a concern in coarse, unconsolidated, water-saturated sandy materials that can be mobilized during well development. Tremmie filter pack installation methods can produce voids and preferential migration pathways allowing cross contamination. The American Society of Testing and Materials (ASTM) Standard Practice for Design and Installation of

Figure 1: Preparation of a 3/4-inch prepack direct-push well. The stainless steel enmeshed sand pack sleeve (manufactured by GeoInsight) covers the slotted portion of the PVC riser pipe. The flanged area protects the screen from backfill materials.

Groundwater Monitoring Wells in Aquifers (ASTM D5092) specifies filter pack design based on grain size distribution of the screened interval of the aquifer formation. The recent development of pre-packaged well screen materials and annular protection devices for direct-push wells meeting the ASTM D5092 specifications (Figure 1), offers an alternative to the highly uncertain tremmie filter pack installation method. Under certain conditions, however, there is no guarantee that annular sealing is complete for any well.

The State of California Department of Water Resources (1981) requires the following:

"An oversized hole, at least 4 inches (100 millimeters) greater than the diameter of the conductor casing, shall be drilled to the depth specified … and the annular space … filled with sealing material."

The purpose of the 2-inch (5.08-cm) increase in annular sealing radius is to ensure that formation particles are inhibited from entering the well. However, since the design theory of sand pack gradation is based on mechanical retention of the formation particles, a pack thickness of only two or three grain diameters is required to retain and control the formation materials (Driscoll, 1986). Since it is impractical to tremmie a sand pack in a drilled well annulus only a fraction of an inch thick and expect the material to completely surround the well screen, the 2-inch (5.08-cm) requirement has been used as a minimum criteria. Current designs for pre-packaged direct-push well screens allow for the use of "thin" filter packs. Therefore, the 2-inch (5.08-cm) requirement applied to drilled wells may not be necessary for direct-push pre-packed wells.

On August 11, 1999, an advisory committee comprised of experts from industry, government regulatory entities, and academia was assembled to determine how best to compare the performance of direct-push and drilled monitoring wells. Experimental design concerns consisted of the comparison of chemical data (e.g., concentration of contaminant of concern and monitored natural attenuation indicator parameters), field measured parameters (e.g., temperature, pH, dissolved oxygen, etc.), and hydrogeologic data (potentiometric surface measurement) for the different types of wells. Detailed discussions related to direct-push well construction, experimental design, well configuration plans, statistical analysis, and sampling approaches were considered.

The study was conducted within an MTBE plume located in Southern California. According to site personnel, gasoline was released from the underground storage tanks (USTs) and fuel distribution lines at the automobile service station in 1984. A large source zone and associated dissolved contaminant plume have resulted in concentrations of MTBE ranging from 2 ppb to 35 ppb in the shallow, unconfined sand and silt aquifer, extending approximately 6 to 22 feet below ground surface.

Field efforts included piezocone measurements, collection of core samples and water samples from selected depths, installation of customized monitoring well test cells, and sampling of the wells in triplicate through four rounds. Laboratory efforts included chemical analysis of water samples (for MTBE and various inorganic materials and parameters), determination of permeability for selected core samples, and determination of grain size distribution for well design (as required by ASTM 5092). From February 8 to February 14, 2000, a total of 32 wells were installed in two cells (Figures 2 and 3). Specific well screen design (sand filter pack and slot size) was determined using several criteria. To evaluate performance of wells adhering to the ASTM D5092 specifications, grain size distribution curves were generated to determine filter pack grain size and corresponding slot size recommendations. Two additional well designs were also employed to account for the most common well installation designs used by HSA drillers and direct-push device operators. An extensive statistical effort was conducted to compare the performance of the different well designs for the specific hydrogeologic regime. Analysis of variance (ANOVA) was selected as the best technique for analyzing data consisting of categorical factor predictors and a continuously varying response variable.

No significant performance differences were observed between the direct-push wells and HSA drilled wells. Within experimental error, the performance was comparable for the particular hydrogeologic setting. Although a comprehensive hydraulic evaluation was not conducted, comparisons indicated that the different well designs perform similarly with respect to water level measurement. Efforts to gain regulatory acceptance are currently in progress.

A comprehensive report (Kram *et al*., 2001) documents the efforts and results in detail. For more information, please call DSN 551-2669; 805-982-2669 or DSN-551-1299; 805-982-1299.

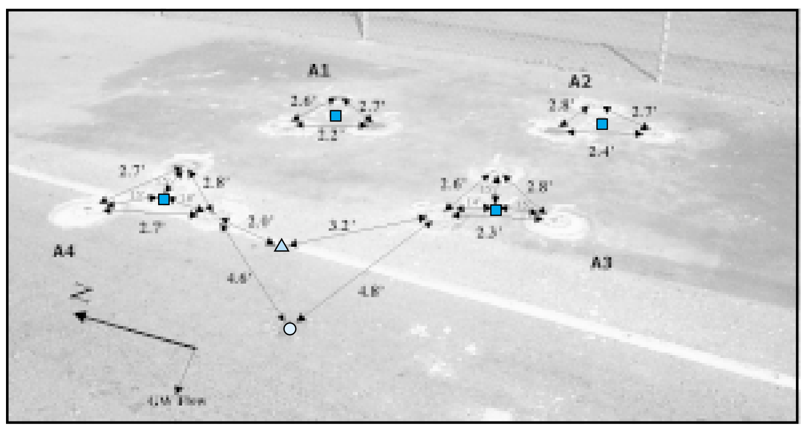
References

American Society for Testing and Materials. ASTM D5092: Standard Practice for Design and Installation of Groundwater Monitoring Wells in Aquifers.

Driscoll, F.G. (1986). Groundwater and Wells. Johnson Filtration Systems, Inc., St. Paul, MN, 5512, 1986.

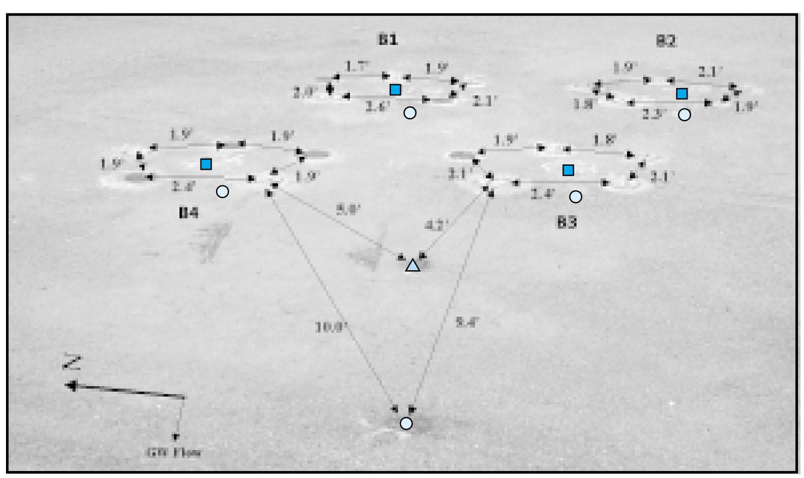
Kram, Mark L., Dale Lorenzana, Joel Michaelsen, and Ernest Lory, 2001. Performance Comparison: Direct-Push Wells Versus Drilled Wells, NFESC Technical Report, TR-2120-ENV.

State of California (1981). California Department of Water Resources Bulletin 74-81: Water Well Standards: State of California, December 1981, 92 p.



■ Piezocone Push △ GeoProbe Water Sample ○ Boring

Figure 2: Cell A Wall Cluster Configuration



■ Piezocone Push △ GeoProbe Water Sample ○ Boring

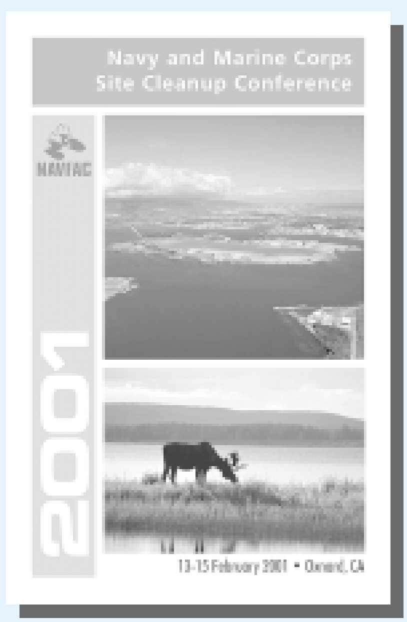
Figure 3: Cell B Wall Cluster Configuration

2001 Navy & Marine Corps Site Cleanup Conference

Environmental Cleanup for a Sustainable Future

Over 200 environmental professionals gathered in Oxnard, California for the Navy & Marine Corps (N&MC) Site Cleanup Conference, 13-15 February 2001. The popular "Washington Perspective" session gave Assistant Secretary to the Navy (ASN), Chief of Naval Operations (CNO), Office of General Counsel (OGC), and Naval Facilities Headquarters (NAVFAC HQ) the chance to brief project managers on the status of our clean up of sites contaminated from past operations, the latest issues and policies, and address questions.

More than 50 technical breakout sessions provided details and insight on actual cleanup projects. Training sessions covered risk assessment, environmental background analysis, sediment characterization, and new breakthroughs on cleanup technologies. Value added benefits of the conference include such things as networking, sharing lessons learned, technology transfer, and discussions of the latest issues and problems facing the project managers. CNO presented Restoration Employee of the Year Awards to all the EFDs. (see photos to the right) Also, during the week of the conference, several other side meetings took place while all the right people were together, saving travel time and money.



The conference proceedings will soon be available on CD ROM and the internet at the following address: http://erb.nfesc.navy.mil/erb_a/support/conf_cd/2001cleanup-conf.htm

Dave Olson of
The Chief of Naval Operations
presents

Restoration Employee of the Year Awards

Southwest Division
Restoration Employee of the Year

Mr. Thomas Macchiarella

Thomas Macchiarella made significant contributions to the Navy Restoration program as the SWDIV BRAC Environmental Coordinator (BEC) and Lead RPM for multiple California BRAC installations including Novato, Naval Station and Naval Shipyard Long Beach.

Pacific Division
Restoration Employee of the Year

Ms. Anne Okamura

Anne Okamura consistently performed in a highly professional manner, making significant contributions to the Navy in the cleanup of NAS Barbers Point and as the BRAC Environmental Coordinator for Barbers Point.

Naval Facilities Engineering Service Center
Restoration Employee of the Year

Mr. Robert L. Kratzke, PE

Robert Kratzke made significant contributions to the Navy as the Technology Transfer Team Lead in NFESC's Installation Restoration Division, Technology Application Branch. Robert also developed, organized, and presented the highly praised Remediation Innovative Technology Seminars (RITS) throughout the NAVFAC community.

Engineering Field Activity Northwest
Restoration Employee of the Year

Mr. Jai Jeffery

As Lead Remedial Project Manager for the Bremerton Naval Complex, Mr. Jai Jeffery was instrumental in the conception, development, and execution of a Comprehensive Environmental Restoration, Compensation, and Liabilities Act (CERCLA) Record of Decision (ROD) for cleanup combined with Military Construction (MCON) dredging projects at Naval Station Bremerton and the Puget Sound Naval Shipyard.

Southern Division
Restoration Employee of the Year

Mr. J. Dudley Patrick

Dudley Patrick made significant contributions to the Navy Restoration program as the SOUTHDIV RPM for NAS Key West and the former NAS Dallas.

Northern Division
Co-Restoration Employees of the Year

Messers. Lonnie Monaco

and Mike Fohner

For significant contributions of their shared services in support of the Navy Installation Restoration (IR) program as RPM and Remedial Technical Manager, Northern Division, Naval Facilities Engineering Command.

Atlantic Division
Restoration Employee of the Year

Mr. Christopher Penny

Chris Penny made significant contributions with his consistent approach in his responsibilities as the LANTDIV RPM in support of the Navy Installation Restoration program at Norfolk, Virginia. Also, for his duties to manage two separate RCRA Corrective Action programs at the Naval Station Roosevelt Roads, Puerto Rico and at Camp Garcia on Vieques Island. His efforts also include CERCLA investigations and interim UXO response at the Naval Ammunition Support Detachment (NASD) on Vieques.

Engineering Field Activity Chesapeake
Restoration Employee of the Year

Mr. Walter A. Legg
(not pictured)

Walter Legg was chosen by his peers for contributions that were over and above the typical requirements of an RPM. Walter successfully managed the cleanup program of White Oak, one of the most politically sensitive bases in EFA Chesapeake's footprint.

Engineering Field Activity West
Restoration Employee of the Year

Mr. William A. Radzevich
(not pictured)

William Radzevich is commended for outstanding contributions to the NAVFAC Installation Restoration program for projects at the former Hunter's Point Naval Shipyard (HPS). Also, for his duties as the BRAC Environmental RPM for Parcel D at HPS and subsequently for his diligent efforts as Environmental Engineer with the San Francisco Bay Field Office.

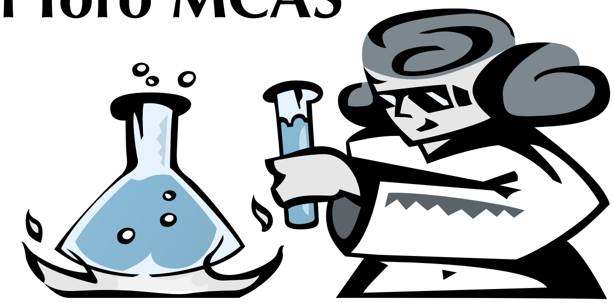
Don't give me no more BRAC Talk

Many RPM News readers were also on the mailing list for another newsletter, "BRAC Talk". This is to let you know that the BRAC Talk newsletter has been discontinued.

The Naval Facilities Engineering Command (NAVFAC) published BRAC Talk from the Summer of 1996 to the Fall of 2000. The Fall 2000 issue of BRAC Talk (the 17th issue) was the last issue published. All seventeen issues are available in Adobe Portable Document Format (PDF) at *http://www.navfac.navy.mil/brc/links/navalst.htm*. With the closure of all major Navy bases that were slated for closure, and the transfer of the majority of the property to be transferred, the environmental cleanup at closing Navy bases is coming to a successful end. For further information, see the web links provided on the last page of BRAC Talk, "BRAC Installation web sites".

Naval Facilities Engineering Service Center Code 413, can be reached at 805.982.5575, DSN 551.5575,

Innovative Technology Applied at El Toro MCAS



By NFESC
SWDIV
Earth Tech

A recently implemented innovative technology is capable of continuously measuring air permeability as well as contaminant concentration along a well screen during Soil Vapor Extraction (SVE). The technology was applied at El Toro Marine Corps Air Station (MCAS) by Earth Tech Inc. using PRAXIS Environmental Technologies patented PneuLog™ system. The technology can be used to assess remediation progress and to provide data to help optimize the efficiency of the existing system.

The primary contaminant at the cleanup site on El Toro MCAS is trichloroethylene (TCE). An SVE system had been installed and working effectively for more than six months. As TCE vapor concentration levels leveled-off below the closure thresholds, PneuLog™ was implemented to evaluate the vertical distribution of residual TCE vapors and vapor flow profiles.

PneuLog™ was applied to ten representative wells around the site. In general, the PneuLog™ technology combines an airflow probe with a volatile organic compound (VOC) detector to make in situ, real time measurements, as a function of depth. The PneuLog™ instrument, which consists of a probe attached to a cable, was lowered into each SVE well. The probe continuously measures contaminant concentration and airflow along the entire well screen length. Soil vapor flow measurements are performed using a downhole flowmeter. VOC measurements are made using a photoionizing detector. The contaminant concentration profiles are calibrated with off-site analyses of vapor samples collected from the well head.

The PneuLog™ results produced useful information. The airflow data showed no areas of restricted airflow, proving that the existing system was operating effectively. The contaminant concentration profiles confirmed that there were no individual pockets of high concentrations of TCE along the well screen. Additionally, the concentration data demonstrated that the highest concentrations were measured close to groundwater and were a result of offgassing from the contaminated groundwater.

PneuLog™ has been successfully implemented on a variety of Department of Defense (DoD) and commercial sites across the United States. The data it produces is not only useful for SVE optimization, but can also be used for soil venting design, risk assessments, and accelerated site characterization. Traditional alternatives are available, however, they do not offer the simultaneous measurement of flow rates and vapor concentrations. In addition, they are typically more time consuming and costly than PneuLog™. At El Toro MCAS, it is estimated that PneuLog™ was utilized at approximately 50% of the cost of collecting similar data using traditional methods.

For further information regarding this project, please contact:

Naval Facilities Engineering Command, Southwest Division
Phone: 619.532.0783

Web News

New Web Site

for "Navy Guidance for Conducting Ecological Risk Assessments"

http://web.ead.anl.gov/ecorisk/

There is a new web site available to Remedial Project Managers (RPMs) and their Team that provides information and guidance for implementing the Chief of Naval Operations (CNO) ecological risk assessments (ERAs) policy. The site provides detailed information on how to conduct an ERA as well as how to evaluate the effectiveness and potential ecological impacts of remedial alternatives. Topics covered on this web site include 1) regulatory basis for ERA, 2) Navy natural resource responsibilities, 3) Navy policy for ERA, 4) the ERA process, 5) site closeout process, 6) issue papers on ERA related topics, and 7) ERA specific tools/analytical methods. There is also a case studies section which presents examples of Navy ERAs. Navy and other agency web sites identifying assessment and cleanup technologies can be found on a Technology Connection section. This web site has been developed and prepared by the Naval Facilities Engineering Command (NAVFAC). The web site address is ***http://web.ead.anl.gov/ecorisk/***. This site can also be accessed through the NFESC Environmental Web Page at ***http://erb.nfesc.navy.mil*** under Regulations and Policies, Navy.

For further information please contact:

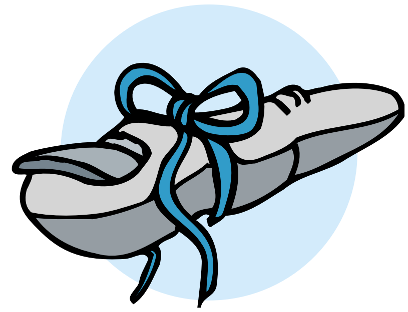
Naval Facilities Engineering Service Center
Phone: 805.982.4798

RPM News on the Web

RPM News has found a new home on the Internet! The new address is:

http://erb.nfesc.navy.mil/erb_a/outreach/newsltr/rpmnews.htm

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.

SUMMER 2001
May 18

FALL 2001
July 27

WINTER 2001
October 5

Calendar of Events

DATE	COURSE NAME	LOCATION	PHONE	EMAIL
Apr 17-20	Advanced Environmental Restoration	Port Hueneme, CA	(805) 982-2918	cecos.navy.mil
Jun 18-20	Fourth Tri-Service Environmental Technology Symposium	San Diego, CA	(757) 357-4011	ets-2001.com
Jun 25-26	Accelerated Bioremediation of Chlorinated Solvents Training Course	Prussia, PA	(770) 242-7712	
Oct 23-24	Accelerated Bioremediation of Chlorinated Solvents Training Course	New Orleans, LA	(770) 242-7712	
Dec 4-5	Accelerated Bioremediation of Chlorinated Solvents Training Course	Tampa, FL	(770) 242-7712	

DEPARTMENT OF THE NAVY

Commanding Officer
NFESC Code 413/Ortiz
1100 23rd Avenue
Port Hueneme, CA 93043-4370