

ENVIRONMENTAL NEWS

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**2004 NORTH AMERICAN ENVIRONMENTAL FIELD CONFERENCE AND EXPOSITION
 TAMPA, FLORIDA**

On January 14–16, Michael, Jonathan, Jayson, and Nick attended the 2004 North American Environmental Field Conference and Exposition in Tampa, Fl. The convention was held adjacent to the University of Southern Florida Geology Research Park.

The purpose of the convention was to provide a means for updating attendees on the latest environmental assessment and remediation techniques. TerraQuest personnel attended lectures on various topics ranging from characterization of fractured bedrock aquifers to the use of various direct push tools for expediting site characterization.

The current “hot” topics in the environmental industry are low flow sampling, the use of direct push tools for expediting site characterization, and the use of flux-based assessment and

remediation. Low flow sampling lectures and field demonstrations revealed that in some instances, better analytical data can be obtained by using this method instead of the conventional bailer sampling method commonly used in the industry. Equipment costs and increased sampling time will likely keep this sampling technique from being used for underground storage tank assessments. It is ideal for assessments where large volumes of hazardous water are generated by conventional sampling techniques.

Geoprobe demonstrated the use of several tools for expediting site assessments. The two most interesting tools were the membrane interface probe (MIP) and the pneumatic slug test system. The MIP probe utilizes a heated permeable membrane that

is driven into the ground to detect volatile organic compounds (VOCs). VOC mapping is extremely useful in determining the depth of contaminants in the subsurface. The pneumatic slug test system allows multiple slug tests to be performed at sites at discreet intervals to determine the hydraulic conductivity of the aquifer.

See the article on the last page regarding flux-based assessment.

University of South Florida



SPECIAL POINTS OF INTEREST:

- Nick Perry obtains NC Drillers License
- Geoprobe / Direct Push techniques can expedite site assessment and reduce costs
- Tank tightness tests do not guarantee your tank hasn't leaked



Nick, Jonathan, and Jayson



MIP Probe Demonstration

EXPEDITED SITE ASSESSMENT TECHNIQUES

Over the last five years, there has been a tremendous amount of effort put into expediting site assessment techniques. Most of the techniques were developed for use at hazardous waste sites where assessments take years and cost millions of dollars. Fortunately, many of the same techniques have found their way into other environmental areas such as underground storage tanks (USTs).

One of the key factors in any assessment is understanding the client's goals. This forms the basis for which an appropriate assessment can be developed.

In the previous newsletter, we discussed the triad approach implemented by the EPA. The triad approach involves systematic planning, dynamic work plan strategy, and real time measurements technology. In the triad approach, a systematic work

plan is developed for a site to identify what types of tests to perform, where the tests should be performed, and the project goals. Real time measurements are used in the field to evaluate the data and determine if additional testing is required. The dynamic work plan strategy involves evaluating the field data while it is being collected to minimize additional site mobilizations.

Clients that have been onsite during an assessment have seen us use an organic vapor monitor (OVM) to screen soils for the potential presence of contamination. The OVM is a qualitative tool. It is not quantitative and is generally not allowed as the sole means of defining the extent of contamination. Dexsil Corporation has developed a field test called Petroflag that can quantitatively determine the amount of certain petroleum contaminants in soil. While the test is less accu-

rate for gasoline constituents, it is ideal for semi-volatile products such as diesel and waste oil. Analyses can be rapidly performed in the field to define the extent of contamination before more expensive laboratory-based methods are used. Unfortunately, at this time, the NC Trust Fund does not reimburse for the cost associated with Petroflag testing methods.

Direct push sampling has probably been the most successfully implemented expedited site assessment technique. This technology allows for the rapid sampling of subsurface soil and groundwater with minimal site disruption. Numerous investigations have revealed that better characterized sites are more successfully remediated. In some instances, the additional assessment has proven that natural attenuation is more appropriate than active remediation.



TerraQuest personnel collecting soil samples to define the extent of contamination

Low flow sampling is one of the newer innovative technologies used to expedite site characterization and reduce costs. Instead of using a bailer to remove several gallons of water from a monitoring well prior to sampling, a low flow technique is employed to remove a smaller volume of water. Generally,

the time and expense involved in setting up to collect low flow samples is not beneficial for UST investigations. However, there are some other low flow sampling techniques available that can be used. One of the most interesting involves the use of permeable membranes. The permeable membranes can

be inserted into monitoring wells empty or with deionized water within them. Over a period of days or weeks, the groundwater will exchange with the fluid in the membrane. The membrane is then removed and the fluid analyzed.



Low flow sampling demonstration

UPDATE ON DIRECT PUSH AND DRILLING SERVICES

In August 2003, TerraQuest purchased a Geoprobe model 6610DT rig. The rig is capable of probing and drilling to depths greater than 100 feet. Shortly after acquiring the rig, TerraQuest installed a monitoring well to a depth of 65 feet.

The direct push capabilities of the rig allow us to install over 150 feet of hole per day. In addition to collecting soil samples and installing moni-

toring wells, the rig is also able to install air sparging wells.

TerraQuest has completed basic tooling for the rig and recently purchased a flat bed F-450 for pulling the Geoprobe trailer. If you have any questions regarding the use of this rig or would like to see a demonstration, please contact us.



TerraQuest Geoprobe

TERRAQUEST STAFF NEWS

TerraQuest would like to welcome Kim Scott back. Kim was involved in a car accident earlier in 2003. Kim will be assisting Jill in daily activities including trust fund package preparation.

TerraQuest would also like to welcome a new staff member, John Hayes. John joined TerraQuest in December after working with the Town of Graham for several years.

John will be assisting with drilling activities, remediation system maintenance, and soil and groundwater sampling.

Congratulations to Nick Perry on becoming an NC Licensed Driller. Nick successfully passed the examination in October, and can now supervise the installation and abandonment of groundwater monitoring wells.

Ryan Kerins, project manager, is recovering well from a car accident in September. He recently underwent a second surgery to replace a pin in his leg. We hope that he will be able to get back in the field soon.

DO TANK TIGHTNESS AND INVENTORY RECONCILIATION METHODS WORK FOR PREVENTING LEAKS?

For years, many tank owners have relied on tank tightness tests and inventory reconciliation methods to verify that their tanks have not leaked. Without hesitation, these methods do not prove that a tank has not had a release. We have removed many tanks that passed tank tightness tests, yet contained

holes up to a 1/4 inch in size. If you are performing tightness tests on older tanks that are backfilled with low permeability material such as clay, you might have a problem.

Inventory reconciliation methods don't work well either. For two months, TerraQuest supervised the excavation of

7,000 tons of soil from a site in Cary, NC. The tanks passed tightness tests and there were no inventory discrepancies. The excavation shown to the right was from the dispenser area.



Dispenser Island Excavation

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TerraQuest Environmental Consultants, P.C. is a full service environmental consulting firm located in Carrboro, NC. We specialize in the assessment and remediation of various types of facilities.

If you have questions regarding our services, please feel free to contact us at (919) 932-1590 or visit our website at www.terraquestpc.com

FLUX-BASED ASSESSMENT AND REMEDIATION

I included the picture of the orangutan so you would at least read past the boring title. Now that you have read this far, you might as well read it all. What is flux-based assessment and remediation? Basically, it is a more realistic way of deciding on what sites need remediation. Historically, all UST sites were treated the same. It did not matter if your site was located in the city or the county. The cleanup levels were the same. The risk-based corrective action (RBCA) method was devel-

oped to address that issue and cleanup sites based on risk. While the RBCA method is a giant leap forward, it still needs work.

Flux-based assessment and remediation is a growing technique used to more accurately assess the risk a site poses to the environment or a sensitive receptor such as a potable well. For example, Site A has MTBE contamination located 400 feet from a municipal well producing 500 gallons per minute. Site B has MTBE contamination located 400 feet from a pri-

vate well producing 3 gallons per minute. Under RBCA, both sites would require remediation. Using the flux-based approach, Site A may not need remediation. The flux-based approach considers the fact that the well is producing 500 gallons of water a minute. In this example, let's assume that that volume of water is sufficient to dilute the contaminant levels to below detectible concentrations. Thus, this approach may make RBCA assessments better for everyone.



Is it all monkey business?

TerraQuest will continue to investigate alternative options for site assessments and remediation to provide clients with quality choices. If you should have any questions regarding your site, please feel free to contact us.