

news

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MEMBER

GROUNDWATER REMEDIATION USING MMPE

Groundwater remediation can be accomplished using a variety of in situ and ex situ techniques. Selecting an appropriate remedial technology depends upon many factors including the type of contaminants, contaminant concentrations, site hydrogeology, and remedial goals. Mobile multi-phase extraction (MMPE) is a promising remedial technology that uses mobile equipment capable of recovering groundwater and vapors using high vacuum pumps.

There are several reasons why MMPE is so attractive. The mobile nature of the equipment means that costly, dedicated equipment and site construction are not required. The equipment is generally rented and once remediation is complete, it is moved to another site.

In addition to recovering liquid, MMPE can be used to recover contaminated vapors aiding in soil

remediation. Conventional technologies generally use separate collection points and remedial equipment to treat soil and groundwater.

MMPE is generally useful in three types of site situations. First, sites that have free phase product are generally good candidates for MMPE. MMPE can remove the product, highly contaminated groundwater, and aid in the reduction of impacted soil. Product removal is key to any site remediation because its presence will continue to act as a source for (Cont. on page 2)



MMPE Extraction Well

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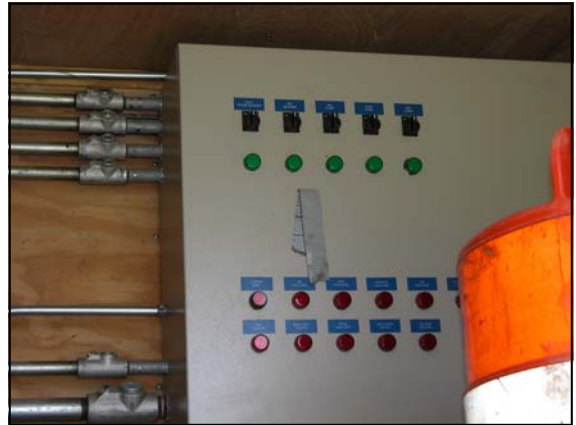
GROUNDWATER REMEDIATION USING MMPE (Continued)

groundwater impact. Secondly, MMPE can reduce high concentrations of contaminants in groundwater. In some situations, reducing the groundwater contaminant concentrations may allow site closure. Without MMPE, either dedicated equipment or lengthy monitoring periods would be required to obtain site closure.



MMPE Equipment

Another optimal situation for the use of MMPE is at sites with low levels of groundwater contamination. MMPE may be able to reduce contaminant concentrations to acceptable levels and allow for site closure, thus reducing long-term monitoring costs.



MMPE Control Panel

In order to determine if MMPE is an appropriate remedial technology for a particular site, one must have a thorough understanding of the site contaminants and hydrogeology. As with other remediation techniques, MMPE is not appropriate for all sites.

If you have specific questions regarding MMPE or would like to discuss its application to your site, please contact us.

TRUST FUND RANKING AND FUNDING LEVELS

After years of operating the North Carolina Leaking Underground Storage Tank Trust Fund in the red, it appears that the fund has finally turned around. Significant work stoppages at contaminated sites over the last two years have allowed the fund to return to solvency. For the week ending July 28, the fund balance was approximately \$11.3 million.

On April 17, 2006, commercial sites ranked H500 and above were required to proceed with necessary cleanup activities. On July 3, 2006, the ranking was lowered and commercial sites ranked H400 and above were required to proceed with necessary cleanup activities. For cleanup activities to proceed as directed at non-commercial sites, they must be ranked H500 and above.

If you are not familiar with the priority ranking system, here is a brief description. Once a limited site assessment is completed, a site is ranked either High, Intermediate, or Low Risk. The ranking is based upon contaminant levels and whether or not sensitive receptors such as water supply wells and

surface water bodies are located nearby.

For sites ranked Intermediate or Low Risk, the North Carolina Division of Waste Management—Underground Storage Tank Section (NCDWM-UST) is not requiring additional assessment or remediation at this time. Note that this does not relieve a responsible party from the requirement to assess and cleanup a site. It simply delays it until the NCDWM-UST has adequate funds to direct the responsible party to conduct the work. The responsible party can conduct the work as non-directed; however, reimbursement from the trust fund will be significantly delayed.

For High Risk sites, a number is assigned to the site depending upon the degree of risk to surrounding receptors. Once a site is directed to conduct additional work, a pre-approval request must be submitted to the NCDWM-UST so that the costs can be pre-approved. This will allow the responsible party to be reimbursed within 90 days of submitting a claim.

PHASE I, PHASE II, AND BASELINE STUDIES

Commercial property transactions usually involve some form of environmental investigation. Many of these investigations are required by lending institutions to aid in determining who might be responsible for any environmental cleanup costs and potential future liability.

A Phase I Environmental Site Assessment is geared toward identifying recognized environmental conditions (RECs) onsite and in the site vicinity. RECs can consist of such things as underground storage tanks, above-ground storage tanks, stained soil, oil in drains, dead or stressed vegetation, trash piles, etc. Once identified, it is the responsibility of the client to determine if the RECs should be investigated further.



Are Phase I assessments appropriate for sites with underground storage tanks? The answer is yes and no. Conducting a Phase I at a service station will give the client information about surrounding contamination incidents that could affect the site. It will not determine if tanks have leaked at the site, which is often the primary interest. For that reason, a Phase II site assessment is recommended.

The cost for completing a Phase I is approximately \$1,600. Sites consisting of several acres or more will increase the cost. Later this year, there will be a major change to the way Phase I's are conducted. The new standard will be known as All Appropriate Inquiry. Complying with this new standard will likely increase Phase I

costs 25% or more.

A Phase II Environmental Site Assessment is used to determine if a release has occurred. The number of samples required depends upon the site layout and location of RECs. For sites with underground storage tanks, sam-

ples are typically collected around the tank field, along the product lines, and at the dispensers. Since sampling cannot be conducted directly beneath the tanks, a groundwater sample is usually collected nearby.

There is no set cost for a Phase II. The cost will depend upon the site layout, number of samples, and client objectives. In some cases, once contamination is detected, additional testing is not required.

Baseline studies are similar to Phase II assessments. Prior to purchasing or selling a property, many clients are interested in establishing a baseline for the current site conditions. This is particularly important at sites where contamination is detected and future operations could result in additional impact. Establishing a baseline will make it easier to determine who is responsible for site remediation and, if necessary, cost apportionment.

If you have questions regarding site assessments or baseline studies for sites you are selling or purchasing, please contact us to discuss your options.

RESIDENTIAL HEATING OIL TANKS

The potential for contamination from leaking heating oil tanks is often realized when a residential property is being sold. Many older homes rely upon fuel oil for heat. Some may have converted to natural gas or propane and left the fuel oil tank unused. If these issues are not dealt with prior to closing, they may significantly delay the transfer process.

If contamination is discovered from a heating oil tank, the release must be reported to the appropriate state agency and assessment and cleanup activities initiated. If contamination cannot be remediated to

certain levels, a Notice of Residual Petroleum must be filed with the Register of Deeds to notify the next buyer that contamination remains at the site.

The assessment, notification, and reporting can take several weeks to several months to complete. Thus, if you know a property has a heating oil tank and it could become an issue, it is recommended that action be taken long before the closing date, so that unexpected issues can be resolved.



Please visit our website or contact us for further information on residential heating oil tanks.

TerraQuest Environmental Consultants, P.C. is a full service environmental consulting company providing assessment and remediation services to various industries. Our highly trained staff is OSHA certified and able to provide clients with high quality, cost competitive services. If you have any questions regarding our services, please contact us.

Specializing In:

- Phase I/Phase II audits
- Soil and Groundwater assessment and remediation
- Drilling and Geoprobng
- UST removal and in-place abandonment
- Permitting
- Pilot testing
- Expert witness testimony
- Brownfields



CONTAMINANTS IN NORTH CAROLINA GROUNDWATER

For many residents of North Carolina, water quality is of little concern because their water is derived from a public owned water treatment system and it is assumed to be free from contaminants. According to the *Raleigh News & Observer*, "More than 40 percent of North Carolina's 6.5 million public water system customers drank water last year that had not been properly tested for various contaminants or, if the water was tested, it flunked." Some of the contaminants of concern are bacterial contaminants, gasoline constituents, and arsenic. Bacterial contamination in Walkertown, Canada (2000) and Milwaukee (1993) caused approximately 400,000 people to become sick and dozens died. Arsenic and gasoline contamination have received a lot of attention in the last year around North Carolina.

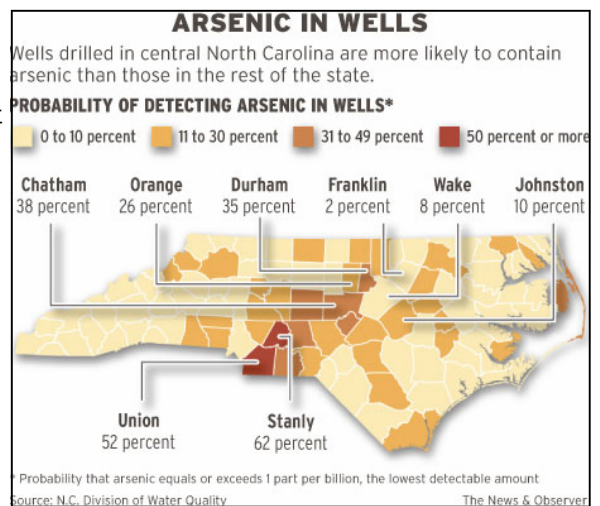
Arsenic contamination results from naturally occurring minerals

that leach arsenic into the groundwater. Prior to January 2006, the drinking water standard or maximum contaminant level (MCL) for arsenic was 50 parts per billion (ppb). The current MCL is 10 ppb. North Carolina has set a health based standard of 0.02 ppb. Thus, any detection of arsenic is too much and wells should be treated.

Gasoline contamination from storage tanks typically shows up as methyl-tert butyl ether (MTBE) in water supply wells. MTBE has a higher solubility than other gasoline compounds and can spread further. North Carolina has established a maximum allow-

able concentration in groundwater of 200 ppb and a maximum safe drinking water level of 11.6 ppb.

In some situations, it may not be possible to eliminate the source of the impact and additional water treatment is required. In those situations, there are various treatment options available that can remove contaminants.



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