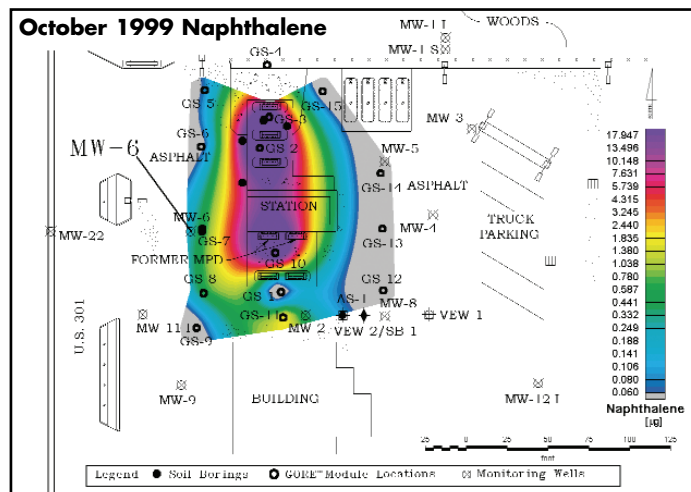
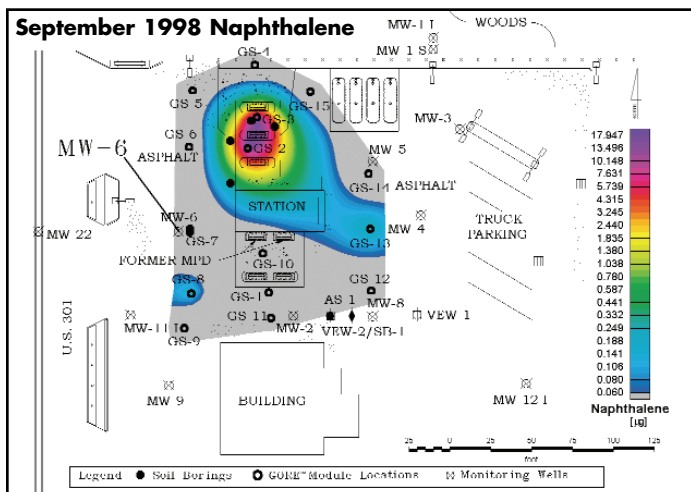
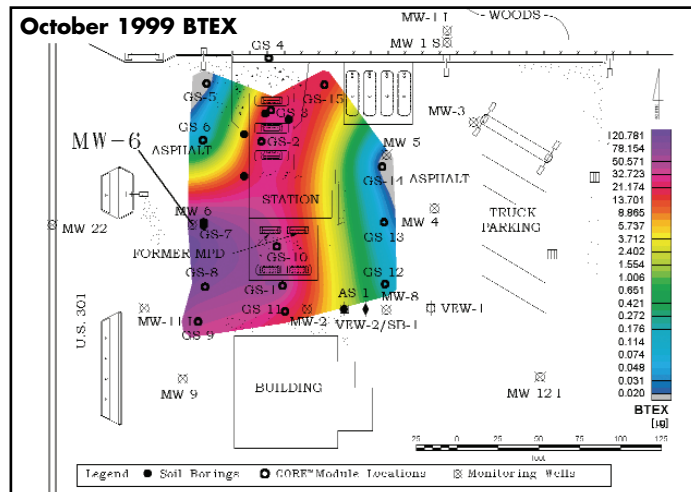
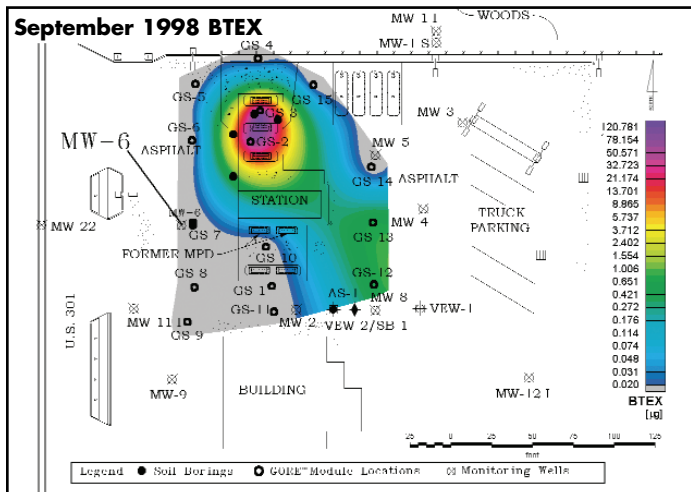


GORE™ SURVEYS

ENVIRONMENTAL SITE ASSESSMENT



Long-Term Monitoring for Reduced Liability in Property Transfer



GORE™ Survey Results. Note the location of MW-6 and the increase in spatial extent of the soil gas plume following a new fuel release.

Survey Summary

Location: Southeastern US

Property: Gas stations

Objective: Reduce liability

- Initial survey established baseline soil gas
- Follow-up surveys identified new release
- Existing site remedy modified to clean up new release
- New owner held liable for clean up
- Seller saved \$100,000+

Survey Objective

The seller of several retail gas stations was looking for a cost-effective way to monitor post-sale fuel releases, thereby minimizing his future liability for site cleanup costs. GORE™ Survey methods were employed to establish baseline levels of target compounds, then repeated at regular intervals to monitor changes in the soil gas.

Site Background & Geology

- Retail gas station, Southeastern US
- Sandy silts
- Groundwater depth - 10 ft.
- Part of a large property transfer that included several other gas stations
- Contaminated soils and groundwater previously quantified from the site (1995)

GORE™ Survey

- 15 GORE™ Modules installed around known or potentially contaminated areas
- 4-ft. install depth
- 14-day exposure
- Modified EPA method 8260/8270 GC/MS analysis at Gore labs
- Results of baseline survey (1998) verified 1995 assessment findings
- Sampling and analysis protocol repeated every six months

Long-Term Monitoring Concept

Soil gas data are contoured using intervals established from the baseline results. By holding these intervals constant, changes in soil gas mass, as a function of a new release(s), become readily apparent in subsequent phases of sampling. Variability is minimized by utilizing the same collection locations, keeping the exposure time constant, and by applying consistent analytical methodology.

Survey Results

The 1998 baseline GORE™ Survey identified a well-defined soil gas plume containing fuel related compounds encompassing the fuel pumps adjacent to the UST area. (See maps, front.) As a condition sale, a biosparge well network was installed to remediate the affected groundwater. A long-term monitoring program was then implemented, calling for the GORE™ Survey to be repeated every six months, according to protocol established in the baseline survey.

The third survey, conducted Oct. 1999, identified notable increases in the soil gas levels, when compared to the baseline sampling. These elevated levels were likely indicative of a new fuel release to the subsurface. The contour maps revealed more extensive fuel-related soil gas plumes. The presence of diesel fuel in the soil and groundwater was confirmed during on-site interviews and conventional matrix sampling. The results of the GORE™ Survey were further verified in Dec. 1999, when a one-inch layer of liquid phase floating product was identified in MW-6. (Prior sampling of MW-6 had revealed low and non-detectable levels of fuel-related compounds including diesel-related compounds.)

Survey Conclusions

Gore's soil gas data served as an early detection tool, successfully identifying and delineating a new fuel release. Used for long-term monitoring, the GORE™ Survey helped to establish the point in time at which new liabilities were incurred.

The GORE™ Survey saved the seller more than \$100,000 in upgrades to the biosparge system; upgrades that were required as a result of the new fuel release. The seller's liability and long-term site cleanup costs were reduced significantly. The buyer was required to fund the remedial system upgrade and was held accountable for a significant portion of the site restoration costs from that point forward.

GORE™ SURVEYS FOCUSING YOUR REMEDIATION EFFORTS.



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