UST MANAGEMENT
PROJECT SUMMARIES

The proper management of underground storage tank (UST) work is critical to accomplishing the work in a cost effective and professional manner that meets the requirements of regulatory agencies and the business requirements of the owner. Leaf Environmental & Engineering, P.C. has professional engineers on staff that have conducted and managed numerous UST removal and closure projects, and are experienced with the engineering, science and regulatory requirements. We have removed USTs for our existing, ongoing clients, for new industrial and commercial clients, and for property owners that have a need or desire to have a UST removed from their property. Our staff is intimately familiar with the state-required processing and paperwork for closure and reimbursement (when eligible) and provides our clients with professionally prepared and complete documentation ready for submittal to the appropriate agencies. Following are several representative projects in this area.

CLIENT: Cigarette Manufacturer
PROJECT: Tank Removals and Subsurface Remediation

Two hazardous chemical and one gasoline UST were removed from the area immediately surrounding the facility's print operation under the supervision of our engineers. Following the removal of the tanks, soil samples were taken and screened for volatile organics using an organic vapor analyzer (OVA); soil samples were also taken for laboratory analysis. Results from the testing led to the discovery of soil contamination as a result of leakage from the gasoline tank. Groundwater monitoring wells were installed at strategic locations on the site and adjacent property to monitor the flow of groundwater and determine the extent of contamination. We designed and installed a vapor extraction system for in-situ soil remediation. Periodic testing of vapors from the vapor extraction wells indicated very favorable results for the remediation of the soils, and to a lesser extent, groundwater. A Corrective Action Plan was prepared and submitted to the state requesting agency permission to treat contamination through the use of VES technology, in-situ soil remediation, and the recovery and treatment of groundwater.

CLIENT: Cigarette Manufacturer
PROJECT: Corrective Action Plan

One 10,000-gallon gasoline UST was excavated and removed. Following soil assessment, a new 10,000-gallon UST with overfill vapor and overspill recovery and a tank monitoring system was installed in the excavation. Free product encountered during the assessment was removed following the installation of a recovery well. Excavation of limited quantities of contaminated soil was completed. Ongoing groundwater assessment activities have detailed the extent of groundwater contamination documenting the presence of chlorinated solvents. A CAP was prepared and submitted to the state for approval.

CLIENT: Textile Finishing Plant
PROJECT: Tank Removals and Site Assessment

Four heating oil USTs and associated pipelines were removed from the site under the supervision of our engineers. Soil samples were collected from the tank and pipeline excavations for laboratory determination of hydrocarbon content. An application was submitted for a permit to remediate the excavated petroleum contaminated soils through bioremediation by land application. The groundwater assessment performed by our engineers revealed no petroleum constituents present. No further soil and groundwater assessment is required in relation to the release of petroleum from the USTs. However, the groundwater assessment activities did reveal chlorinated solvents present in the groundwater at the site. LEAF completed assessment activities to determine the source of the solvents and developed a CAP for the remediation of the site.

CLIENT: Specialty Woven Fabric Manufacturer
PROJECT: Tank Removals and Site Closure

Our engineers were retained to handle the removal or in-place closure of three oil USTs located at two textile plants. Soil and vapor sampling and analysis at one site showed minute traces of contamination, however, because the tank was located beneath a building, the risk posed to human health and the environment was deemed to be negligible and clean closure of the site was recommended to the state. This procedure was approved by the state and no further action was required.

At a second facility, one UST was removed and disposed of in accordance with state and local regulations. Soil samples were collected and analyzed by OVA for organic vapor content, and designated laboratory analyses. The excavation was then backfilled with gravel. A third tank was abandoned in place following extensive soil assessment activities which documented negligible soil contamination. Clean closure was established for each site.

CLIENT: Convenience Store Owner
PROJECT: Investigation of UST Release

A property owner leased his property to a convenience store operator with underground petroleum storage tanks. LEAF reviewed the results of contaminated soil and groundwater samples collected during the completion of a Phase I Limited Site Assessment by another consultant. Evidence of a release of petroleum was discovered and attributed to a service station that had previously been located on the site. LEAF, however, identified two additional sources that were potential contributors and that had previously been reported to the NCDEQ. Further investigation by LEAF revealed that one of the releases on an adjacent property had a high probability of being the source of the on site contamination of the client's property, and through LEAF's efforts, the offsite source was investigated further. The client did not spend additional funds to investigate his property, but the other two potential sources were further investigated by their owners.

CLIENT: **State of North Carolina UST Trust Fund**
PROJECT: **Site Cleanup and Monitoring**

Under the aegis of the state of North Carolina, LEAF was involved in the ongoing remediation of soil and groundwater caused by a leaking fuel UST at the site of a single family residential dwelling. The site qualified for cleanup under the state Trust Fund Reimbursement program. Our engineers coordinated the removal of the UST from the site and installed monitoring wells to sample groundwater for contamination. Regular sampling of groundwater, including the residential water supply which originates from a well located on the subject property, was completed, and contaminated soils were removed for offsite remediation. LEAF successfully remediated the site, allowing the state to grant clean closure of the incident.

CLIENT: **Lumber Mill**
PROJECT: **Investigation and Remediation of Multiple UST Releases**

The owner of this lumber mill had diesel and gasoline UST's removed in the early 1990's and a CSA and proposed CAP were prepared at that time by another consultant. The owner of this facility requested LEAF determine both the status of the site and any future remediation possibilities. LEAF reviewed the CSA and the proposed CAP and concluded that the previous consultant had incorrectly predicted the direction of the groundwater plume and had not properly defined the extent of the contamination. LEAF negotiated with the regulatory authority to obtain trust fund preapproval for the client for necessary work to amend the CSA and do a proper CAP. Additional monitoring wells have been installed by LEAF and the site assessment work is ongoing.

CLIENT: **Private Developer**
PROJECT: **Soil Investigation**

A contractor detected a gasoline odor while removing concrete and an old building from property being redeveloped. Further removal of concrete and soils led to the discovery of underground metal piping that had been a fueling station for vehicles on a military base during WWII. Gasoline odors were detected in soil samples at various locations along the underground piping, therefore, LEAF conducted soil screening and sampling at the site. LEAF determined that gasoline residuals were not present at a concentration exceeding the 10 mg/kg "Action Level" per NC Department of Environmental Quality Division of Waste Management. The NCDEQ closed the investigation which allowed the property to be developed for commercial use.