U.S. EPA
Nationwide

Underground Storage Tank Background Vapor Study

Alberto A. Gutiérrez served as principal in charge of this project while serving as President of GCL, predecessor to Geolex, Inc.

GCL conducted a research project for the Environmental Protection Agency (EPA) to determine the background levels of hydrocarbon vapors in soils surrounding underground gasoline storage tanks. Twenty gasoline service stations were surveyed in San Diego, California; Austin, Texas; and Suffolk County, New York, using soil-vapor analysis techniques to detect and measure the concentrations of the various constituents of gasoline vapors. The purpose of the study was to provide the EPA with reliable information on the background levels of hydrocarbon vapors at clean, properly operated, and well maintained gasoline service stations. This information is being used by the EPA to develop rules and regulations for underground tank monitoring and evaluation.

Hollow steel probes were inserted into the soil backfill area surrounding storage tanks. A vacuum pump was used to remove the vapors from the soil. These vapors were immediately analyzed by a gas chromatograph located in the service van. Samples were taken from depths of two, six, and ten feet at each probe site and five strategically selected probe sites were sampled at each service station. The samples were collected, shipped, and handled according to strict QA/QC procedures to ensure representative, research-grade data.

GCL also provided the statistical and other analyses necessary to interpret the more than 8,000 data points. Non-parametric and other statistical techniques were utilized. It was demonstrated that no single value of background organic contamination in the soil could be used to make a legal differentiation between "clean" and "dirty" sites.

Major Project Elements:

- Underground storage tanks
- Program/Project management/QAQC
- Environmental data management
- Regulatory compliance/ Permitting

GEOLEX
INCORPORATED