Testimony for United States Senate Committee on the Environment Hearing on Senate Bill 1850

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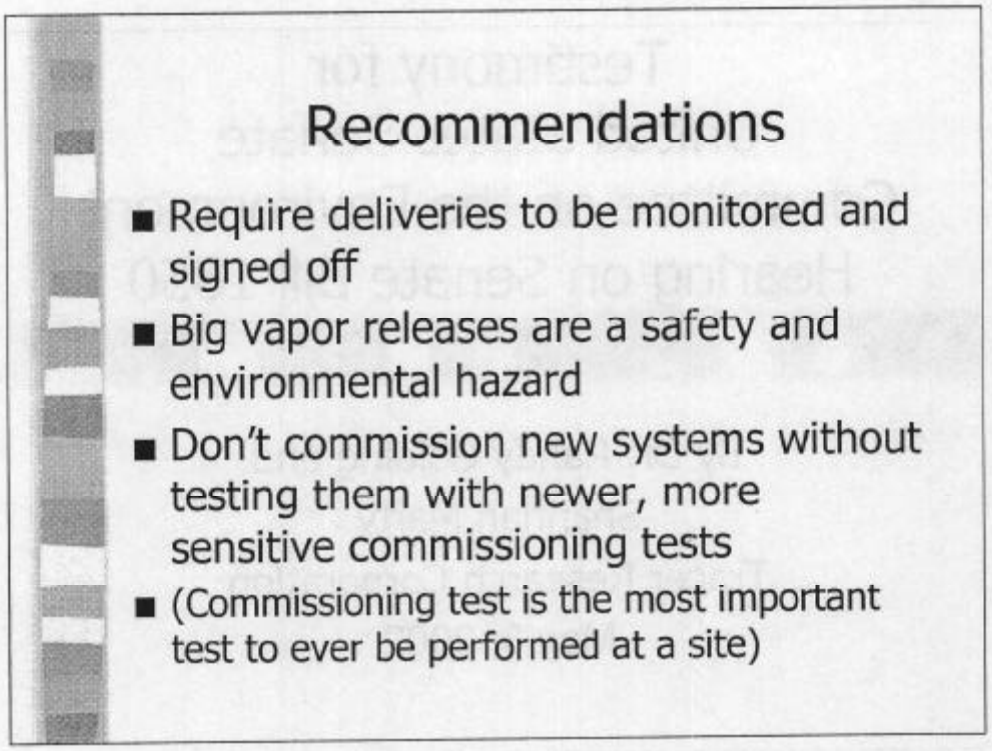
Tracer Research Corporation (Tracer) has been in the business of detecting and locating leaks from tanks and pipelines since 1984. Over the past 18 years, the Company has tested over 3000 miles of piping and over 200,000 tanks.

Tracer is regarded as having the most sensitive leak detection test in the industry. The Company is frequently called in to test systems that are the subject of litigation and has frequently worked with regulatory agencies and private industry to locate release sources so they can be repaired.

Tracer is currently contracted by the State of California to perform the most comprehensive review of underground storage tanks and piping systems at gas stations ever performed. The case studies presented here are from the California Field Based Research project.

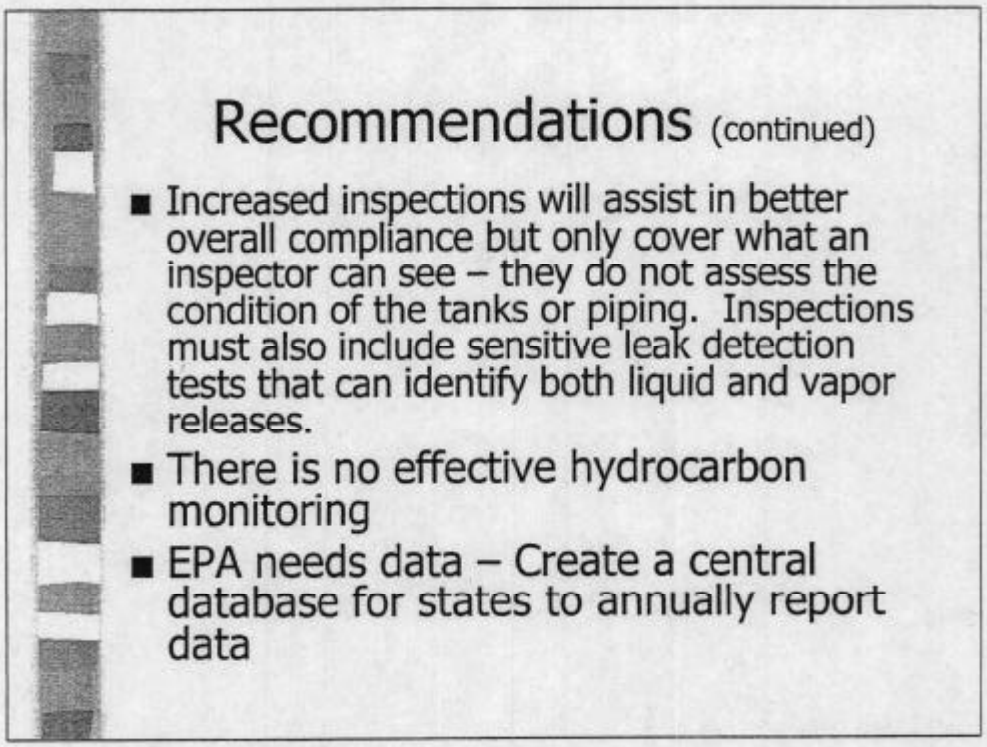
Tracer is making a number of recommendations today. These recommendations are based on our years of experience and observation in working with leak detection and gas stations. Some of the recommendations call for the use of increased leak detection where appropriate, others suggest that increased leak detection is not the total answer. We begin this testimony with our recommendations.



Require deliveries to be monitored and signed off. A significant fraction, even a majority in some areas, of contamination at UST facilities does not come from the UST system itself, but is instead related to fuel handling practices. Examples of activities with significant opportunity to release fuel include deliveries, UST system maintenance, and dispensing. Increased scrutiny of delivery events has not been addressed since the inception of the UST program, in spite of the fact that it is a significant source of contamination.

Big vapor releases are a safety and environmental hazard. Large vapor leaks in UST systems with stage II vapor recovery systems can release up to hundreds of gallons of gasoline vapors in the tank backfill every day. This amount of vapors contains a few pounds of gasoline. This amount of leakage can be environmentally significant. Any water that infiltrates through the tank backfill from the surface scrubs MtBE or any other oxygenate out of any vapor in the backfill and transports it quickly to the water table. Vapor leaks can be a significant source of groundwater contamination.

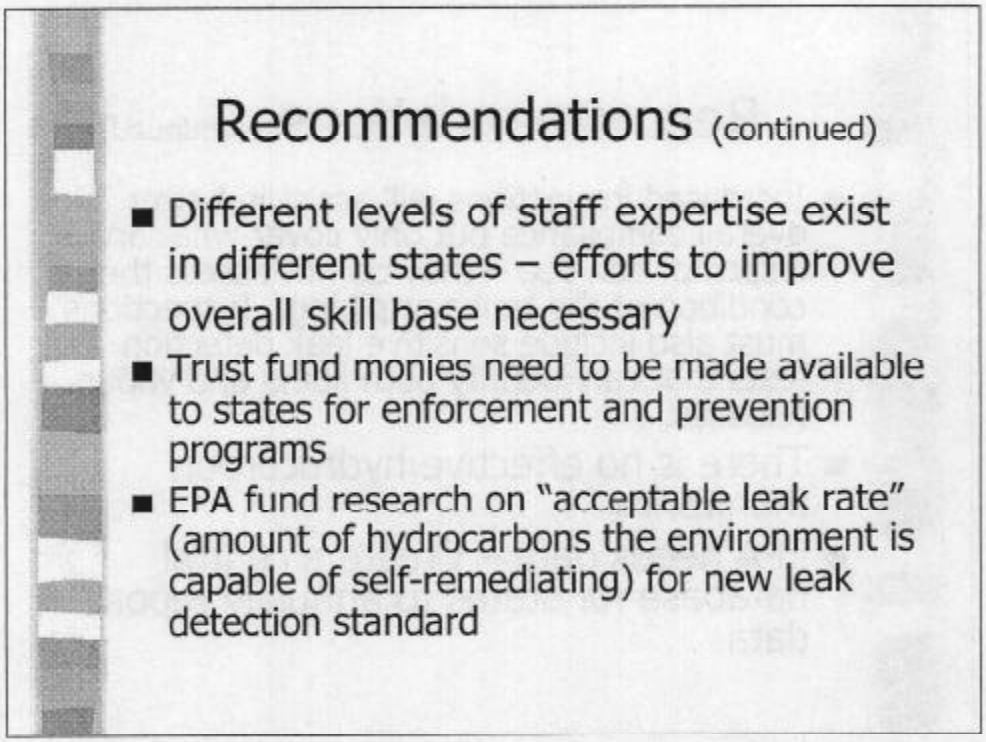
Don't commission new systems without testing them with newer, more sensitive commissioning tests. Many leaks that we find in systems have been there since the system was built. Operations and maintenance dollars are most beneficially spent on systems after they are completely tight. All systems are tightness tested before they are put into service, bit the sensitivity of these commonly used commissioning tests is not good enough to protect the environment. A very sensitive commissioning or re-commissioning test allows maintenance dollars to be spent on a tight system rather than a leaking one.



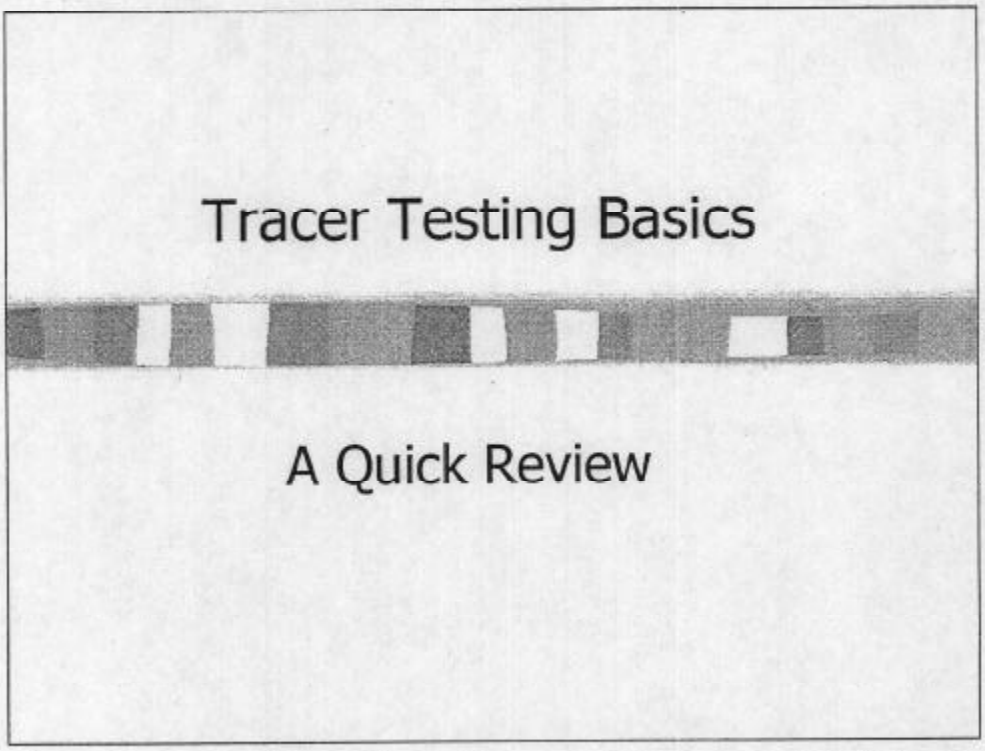
Inspections must include sensitive leak detection tests that can identify both liquid and vapor releases. Current leak detection standards allow for as much as 0.1 gph or 6,000 lbs per year of liquid hydrocarbons to go undetected. Currently compliant systems are able to ignore up to6,000 lbs of leakage each year from each underground storage tanks. Current standards are based on the performance of systems that were current in the 1970s. Today, release detection technology, from a number of providers, has the capability of significantly more sensitivity. The leak detection performance standard should be lowered from the current level of 0.1 gph.

Hydrocarbon vapor monitoring methods are so unreliable and ineffective that they should not be allowed. The reasons that these methods are ineffective include the inability of these methods to deal adequately with any existing background contamination, the under-appreciated role of microbial degradation of hydrocarbons in controlling vapors and the tendency of soil to filter some hydrocarbons out of the vapor phase and thereby preventing the required vapor transport for these methods to be effective.

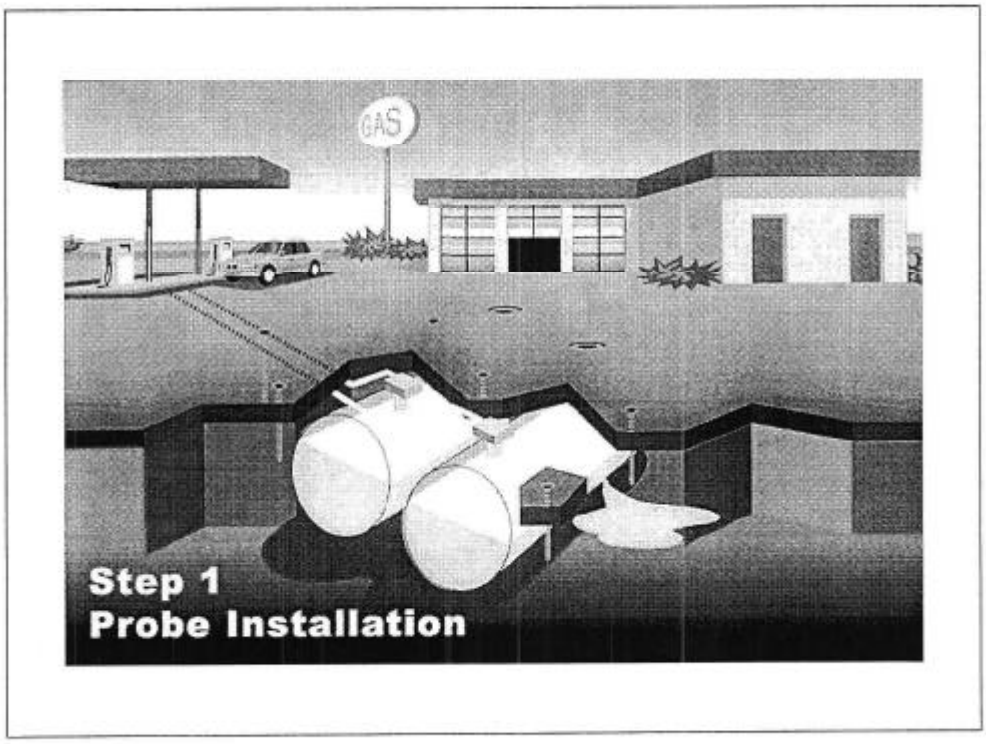
Create a central database for states to annually report data. EPA needs some basic information about numbers of tanks, types of systems and status of those tanks and systems to make good policy. Without that information, they are guessing..



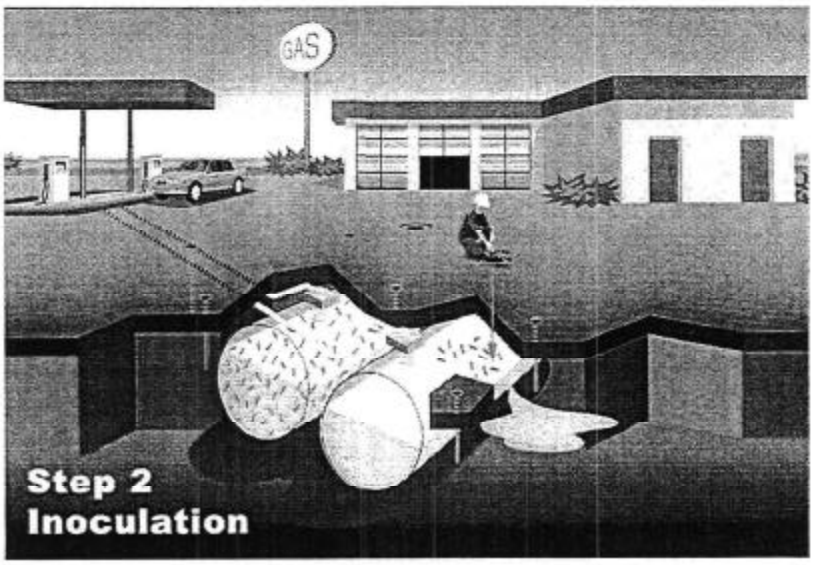
Fund research on "acceptable leak rate." Tracer's research, as well as other groups, suggests that there is an environmentally "acceptable leak rate" that would be based on the amount of hydrocarbons the environment is capable of self-remediating. The current leak detection standard of .1 gph is based on 1970s technology. There are a number of leak detection technologies in the market place currently that are capable of detecting smaller releases. Currently, much of the market doesn't want to know about releases that are smaller than current regulations and thus require the more sensitive technologies to 'dumb down' their tests to meet the regulatory standard.



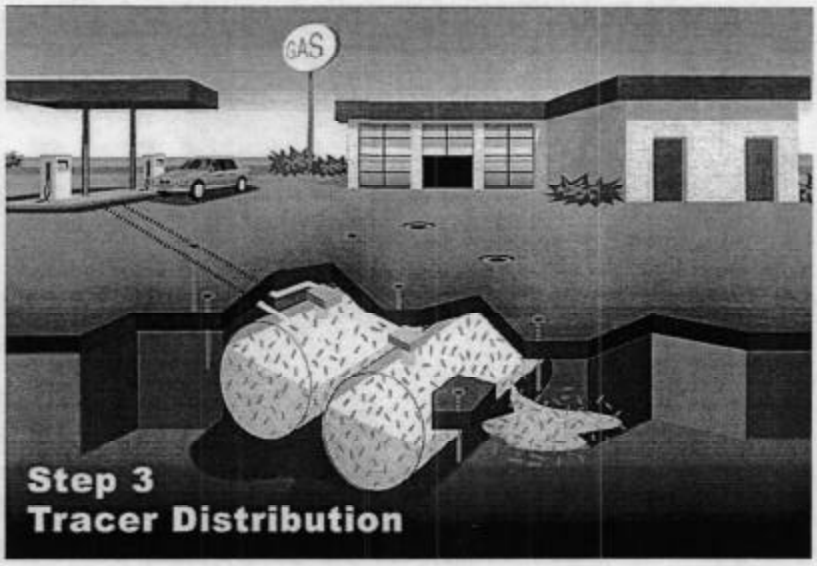
Tracer tests tanks and piping using a chemical tracer based test method. The tracer chemicals that are used are non-toxic, biologically inert, non-radioactive, and have no effect on product quality. They are placed in the system in very small concentrations and are looked for outside of the system.



First, sampling points or probes are placed through the pavement and into the backfill around tanks and pipes.



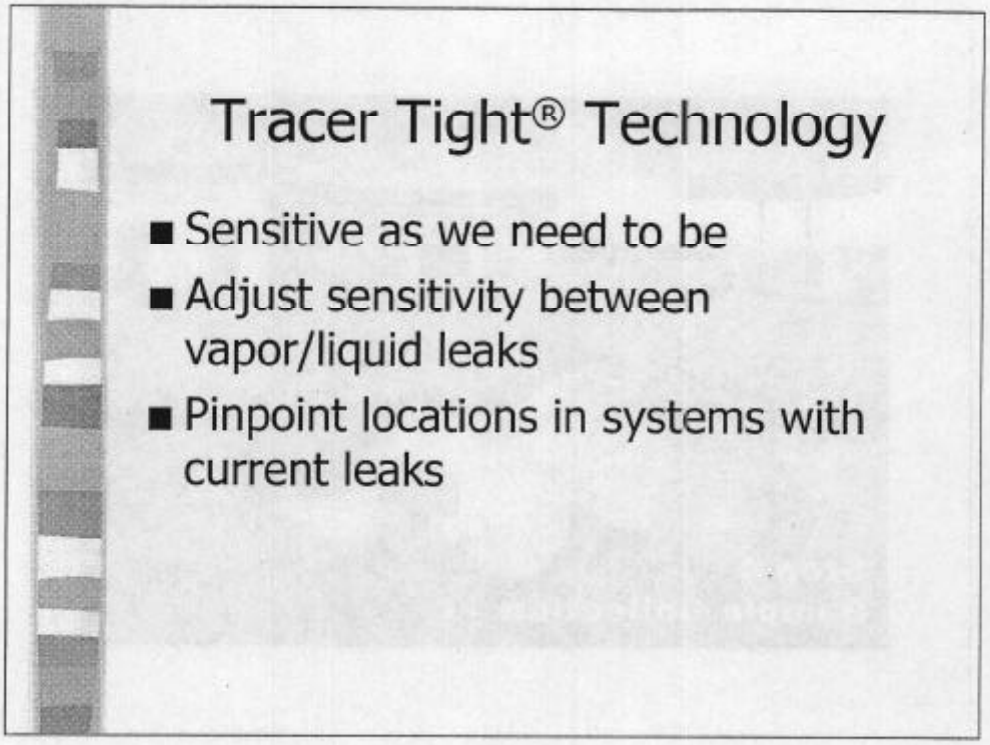
Second, a non-toxic, inert, unique, easily detectable chemical called a leak indicating tracer is added to the product in the UST system.



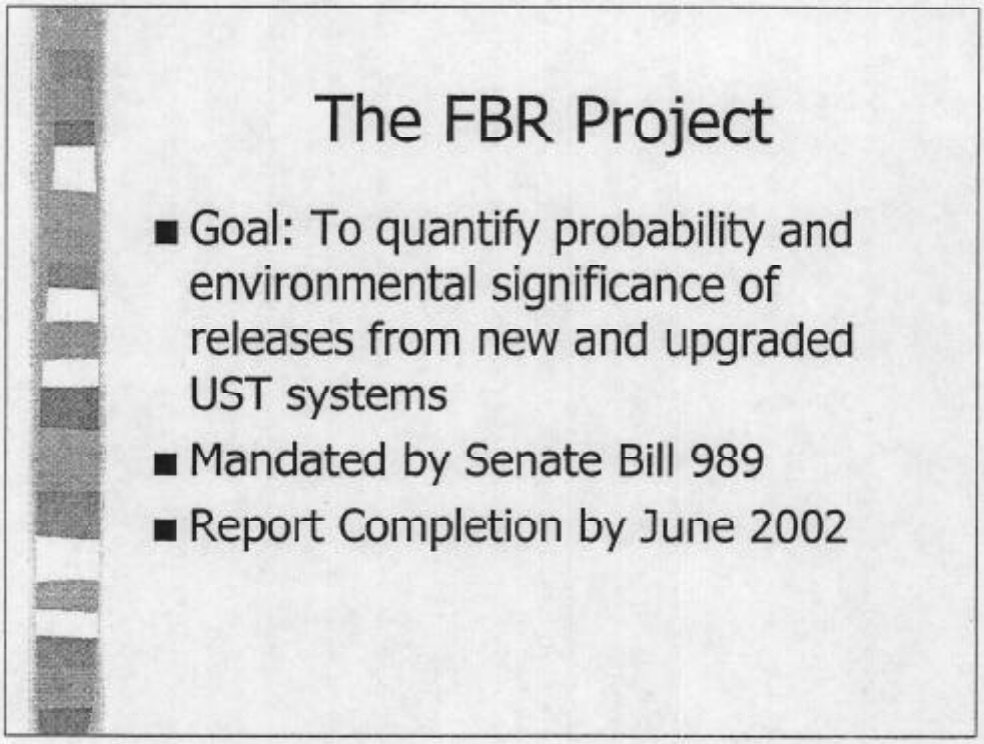
During normal usage, the tracer is mixed with the product and because the tracer has a tendency to become a vapor part of the tracer evaporates and also mixes with the vapors in the tank. The tracer is also transported through the product piping, vent piping the vapor recovery piping. If any vapor or liquid escapes from the UST system and enters the backfill, the tracer spreads out in to the backfill in all directions as a vapor.

Finally, samples are collected from the sampling ports and the samples are analyzed to determine whether any tracer is present.

A good indicator of whether a leak is a liquid leak or a vapor leak is the ratio of the hydrocarbon vapors (TVHC) to tracer vapors A vapor leak transports more tracer in to the backfill relative to the hydrocarbons. The bio-remedial health of a site can also be gauged by the rate at which hydrocarbon vapors are degraded.

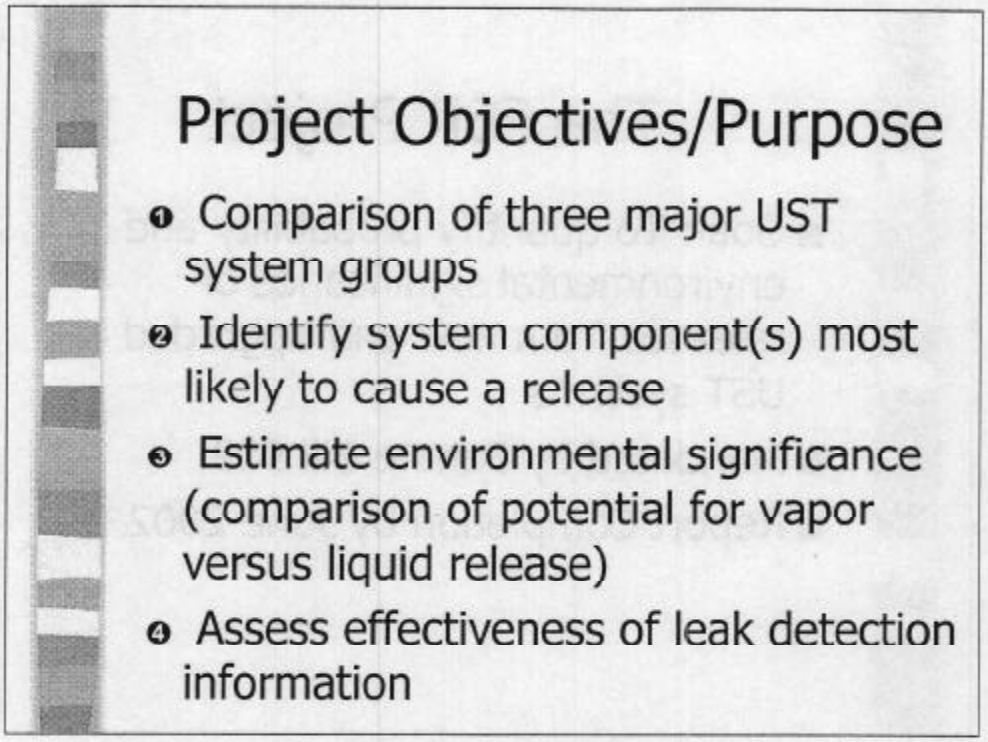


Tracer has Third Party Certifications that have been reviewed and accepted by EPA's National Work Group for tank and pipeline tightness tests to the level of 0.005 gph.



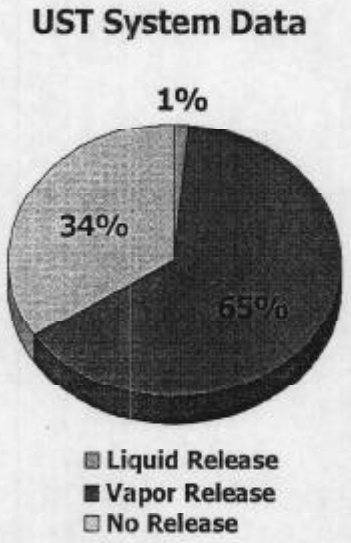
The following portion of the testimony is data from the California Field Based Research Project. This project was mandated by California Senate Bill 989 that was passed and signed into law in 1999.

Sites throughout California were randomly selected and asked to participate in the study.


Project Objectives/Purpose
1 Comparison of three major UST system groups
2 Identify system component(s) most likely to cause a release
3 Estimate environmental significance (comparison of potential for vapor versus liquid release)
4 Assess effectiveness of leak detection information

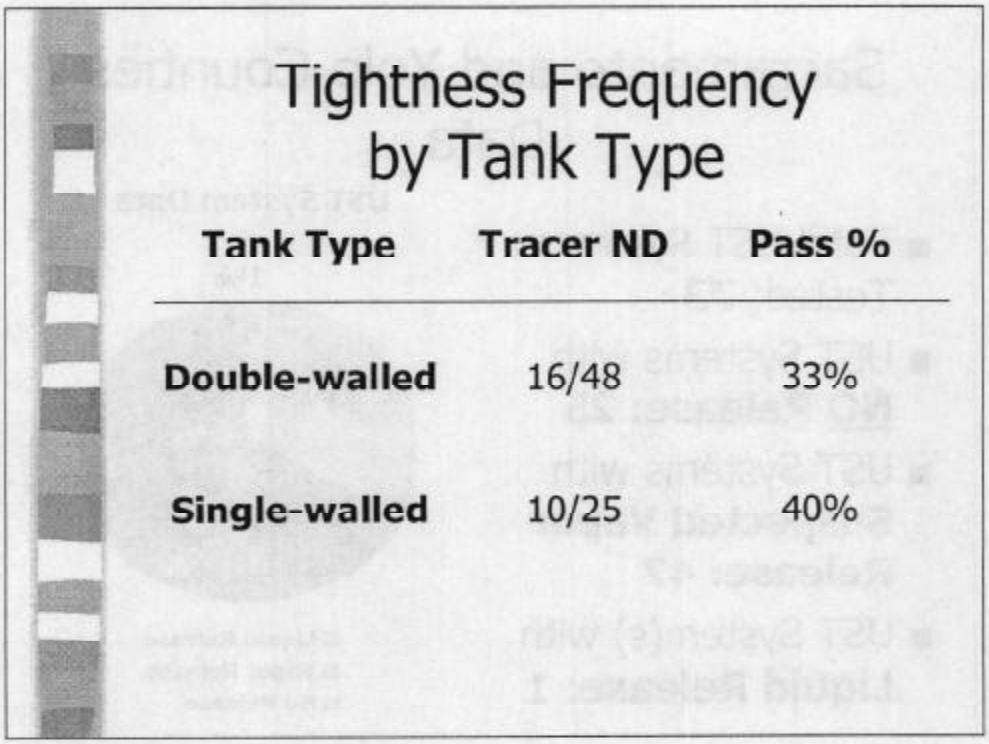
Sacramento and Yolo Counties Data

- Total UST Systems Tested: **73**
- UST Systems with **NO Release: 25**
- UST Systems with **Suspected Vapor Release: 47**
- UST System(s) with **Liquid Release: 1**

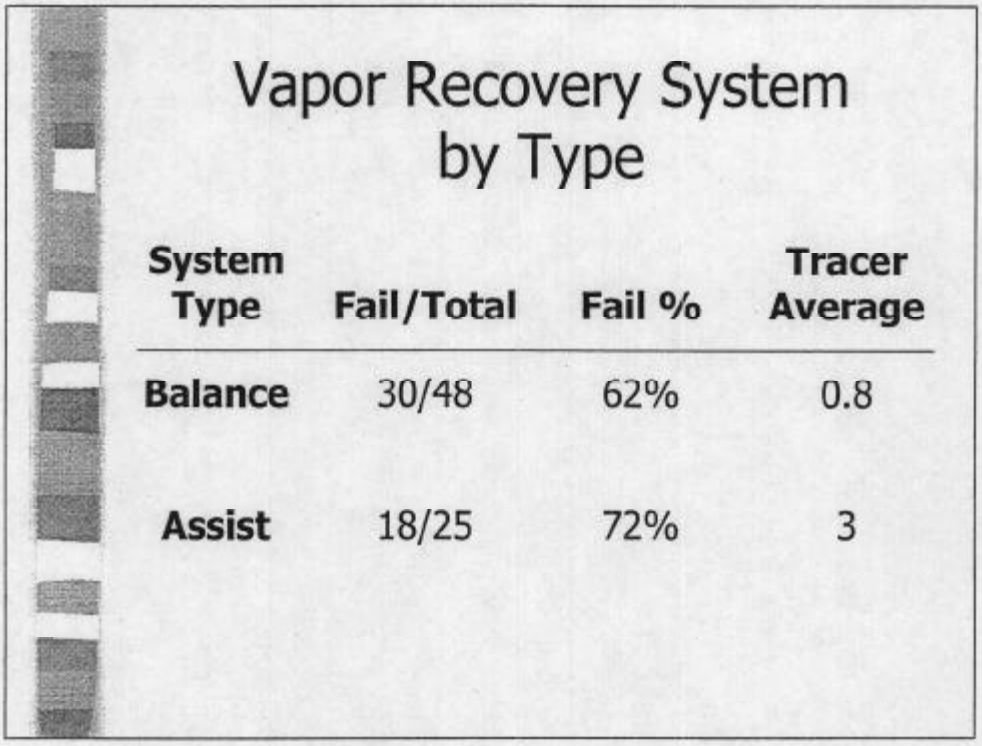


1 out of 73 UST systems was found to have an ongoing liquid release. The leak rate was between 0.0001 and 0.005 gph or between 1 and 40 gallons per year. The leak was due to an installation defect and may have been leaking for a significant portion of the life of the system. This leak was too small for outdated but currently used leak detection methods to detect.

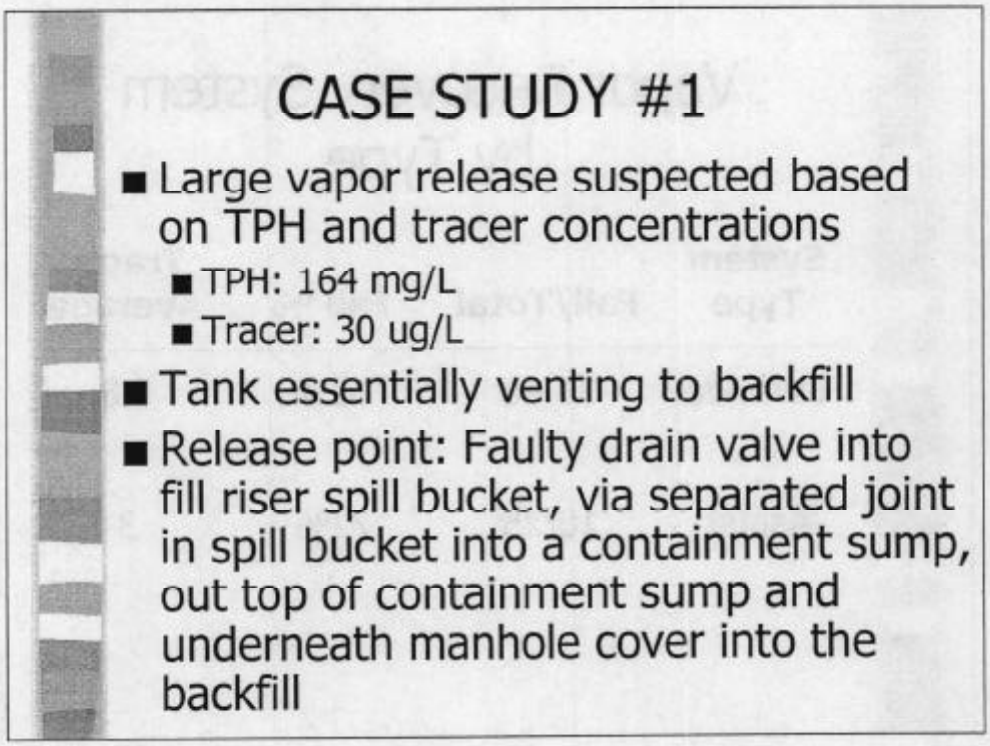
65% of the tanks were found to have detectable vapor leaks. Vapor leak rates varied from a few gallons of vapor per year to hundred of gallons of vapor per day. In this random population of systems, vapor leaks were found to be orders of magnitude more significant in terms of groundwater contamination than liquid leaks.



Vapor leakage from double walled tanks was found as frequently as form single walled tanks. The only liquid leak found was from a single walled pipe. (That had probably been leaking since it had been installed.)



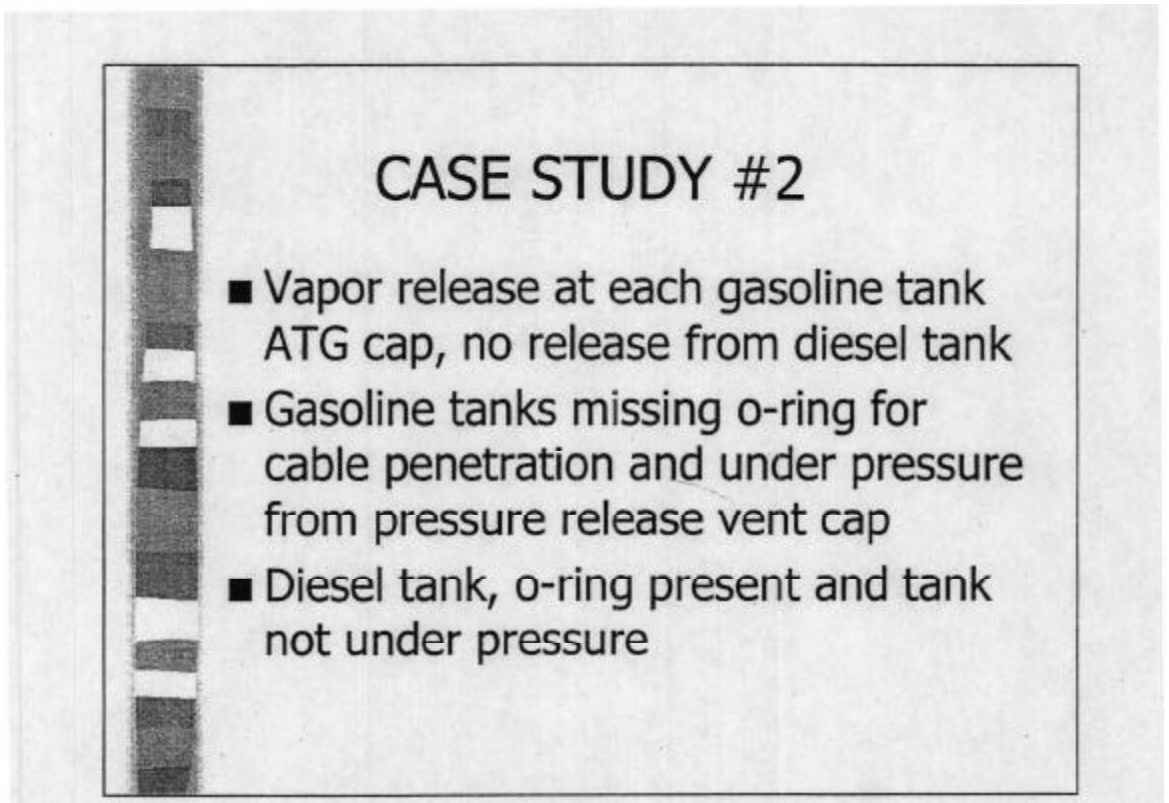
Assist type vapor recovery systems have a greater tendency to pressurize the vapor space of the tank than balance type vapor recovery systems and were found to correlate with greater amounts of vapor leakage.



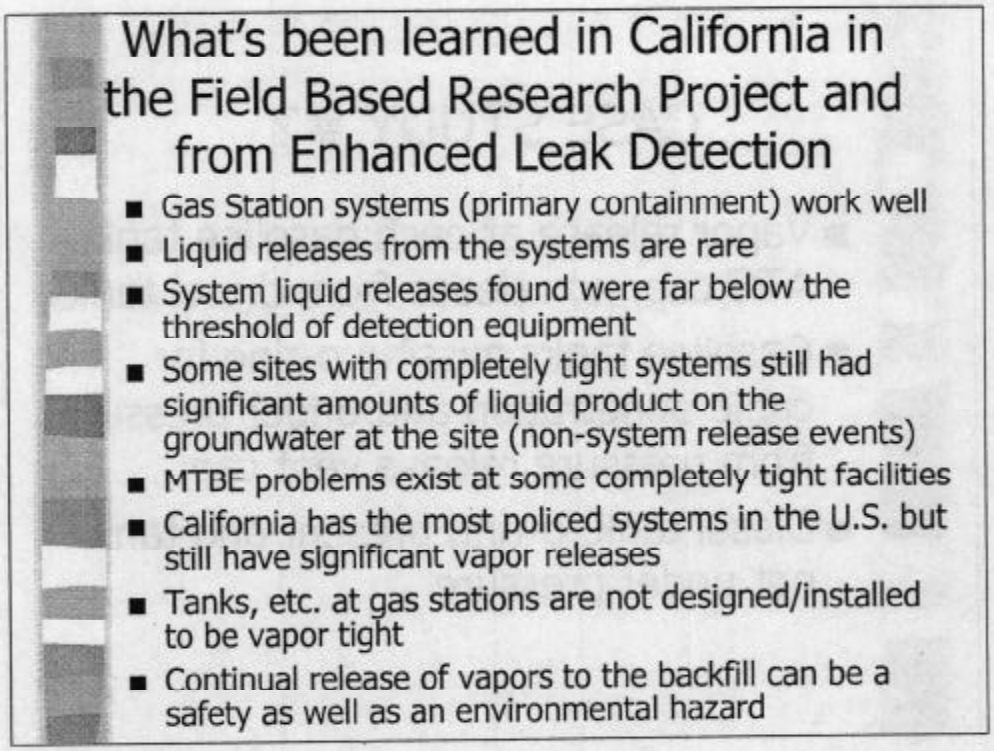
This system was found to be leaking in excess of 400 gallons of gasoline vapors per day. This would account for about 2 to 3 lbs of gasoline per day or about a thousand pounds per year. Tanks should be made to be vapor tight and should be tested to determine whether they are vapor tight.

About 30% of the spill buckets at the systems tested failed to hold water. The most likely cause of the water leakage was dirt, leaves and trash in the drain valve. Unfortunately, leaking drain valves that are attached to UST systems that have a tendency to be pressurized become tanks vents that are located directly below manhole covers.

The hydrocarbon distribution at this site was high concentration and widespread. The lower explosive limit (LEL) for hydrocarbons is 20-40%. The hydrocarbon concentrations in the back fill at this site were 4-8 times higher than the LEL.



65% of the tanks in the study had vapor leaks that were detectable and ranged from very small to very large. The sources of these vapor leaks were many and varied and upon identification and location, most could be repaired.



The California Field Based Research Project is the first comprehensive evaluation of existing UST systems ever done. The findings offer unique scientific insights to help create effective UST system policies.

182 systems have now been evaluated. The updated report from the continued evaluation will be available June 1, .2002. Tracer would be happy to provide the updated report when it is available.

If you have questions or would like additional information, please contract Shannan Marty or Dr. Randy Golding at (800)989-9929.