

UST RELEASE

Serving Underground Storage Tank
Owners and Operators in Utah



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Reducing Ground-level Ozone: Stage I & Stage II Vapor Recovery

Stage I and Stage II Vapor Recovery are control measures that are used to reduce the amount of gasoline vapors that escape into the air during the transfer of gasoline. Raw gasoline vapors contain volatile organic compounds (VOCs) that are precursors to the formation of ground-level ozone. Ground-level ozone is an air pollution problem that occurs primarily during summer in the Wasatch Front area.

The Division of Air Quality rule R307-328 requires gasoline delivery vehicles and the bulk plants and service stations which receive gasoline from them to capture the vapors released when gasoline is transferred, and is usually called Stage I Vapor Recovery. It does not apply to dispensing gasoline to vehicles, usually referred to as Stage II Vapor Recovery. Sources in Davis and Salt Lake Counties are already using Stage I Vapor Recovery. **Sources in Utah and Weber Counties need to start using Stage I Vapor Recovery controls by May 1, 2000.** Sources in any area throughout the State that do not meet the requirements for

reducing ground-level ozone may be required to use Stage I Vapor Recovery controls within six months after being designated as a nonattainment area (nonattainment means an area which is shown by monitored data or modeling to actually exceed the National Ambient Air Quality Standards, the allowable concentrations of air pollutants in the ambient air specified by the Federal Government).

Stage II Vapor Recovery was a popular control measure strategy in the late 80's and early 90's. However, the prevention of vapors escaping as people fuel their vehicles has become less and less cost effective. Other control measures have been more effective at reducing ground-level ozone problems. Stage II Vapor Recovery is still considered a viable control strategy.

Please call Peter Verschoor at the Division of Air Quality at 801-536-4186 if you have any questions or concerns about vapor recovery.

MTBE: A Brief History

by Doug Hansen

The Problem

During the early 1980's, petroleum refiners introduced Methyl tertiary-Butyl Ether (MTBE) as an anti-knock additive in gasoline when the Environmental Protection Agency (EPA) mandated removal of lead from gasoline. Some refineries still add MTBE to gasoline as an octane booster. In 1990, Congress passed the Clean Air Act which required certain regions of the country to add oxygen containing chemicals to their gasoline in an attempt to reduce air pollution. The EPA allowed petroleum refiners to choose from a short list of chemicals to meet this requirement. This list included a few ethers and several alcohols. The most commonly used ether is MTBE and the most commonly used alcohol is ethanol. Of all the allowed compounds, MTBE, which is manufactured from natural gas, and a refining by-product called iso-butylene proved to be the most cost effective oxygenating additive.

Since groundwater provides much of the drinking water in the State of Utah, any pollutant which may impact the groundwater poses a concern. Over the past decade, clean-up of gasoline spills has become relatively routine, due mostly to the characteristics of the petroleum itself. In general, the chemicals that make up

spills are less effective for MTBE because of its relative affinity for water.

Although much is known about the toxic properties of chemicals in gasoline, such as benzene, toxicological studies provide varying opinions regarding MTBE. One study conducted in Italy claims that MTBE causes cancer. Others indicate that MTBE has no

irreversible effects. One fact that no one disputes is that water which has even a small concentration of MTBE (20 to 40 parts per billion) smells and tastes terrible, characteristics which render the water

MTBE

unusable.

What Is Being Done?

As with any type of contamination, prevention of the release of MTBE is better than trying to clean it up. Good operating practices including proper leak detection, operation and maintenance, etc. will help in the prevention of releases. One State has taken another approach. California's Governor issued an official

gasoline don't dissolve well in water and are a food source for naturally occurring bacteria in groundwater and soil. However, MTBE dissolves relatively easily in water and is difficult for bacteria to digest. Because of these properties, it enters groundwater more quickly, travels farther, and degrades more slowly than other chemicals in gasoline. Treatment technologies that have been effective for gasoline

declaration mandating the phase out of MTBE in California by the year 2002. In conjunction with that mandate, California has requested that the EPA release them from the fuel oxygen content requirements of the Clean Air Act. Low sulfur fuels which will be introduced on the market will improve the efficiency of vehicle catalytic converters and may reduce emissions without adding oxygen to gasoline.

Currently the most promising technologies for MTBE removal from groundwater require pumping the contaminated water from the ground and treating it at the surface. Major challenges of this type of treatment include difficulty in removing groundwater from the clay soils which are common throughout the State, and finding someplace to cost effectively discharge or dispose the treated water.

Technologies which treat groundwater in place that have been less effective in treatment of MTBE may, in some cases, be made more effective by increasing the size of the system and operating for a longer period. This can increase cleanup costs substantially.

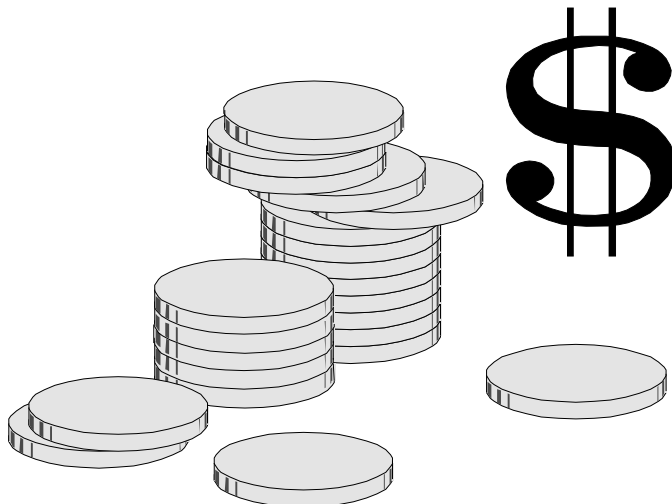
DERR Perspective

In Utah, concentrations of MTBE in groundwater contaminated by leaking underground storage tanks tend to be comparable to benzene concentrations. States where reformulated fuels are required year-round, such as California, have seen much greater concentrations of MTBE.

Any contamination in the groundwater is of concern, even when the shallow aquifer is the groundwater which has been impacted. DERR has no plan to deal with MTBE any differently than any other constituent of gasoline. On sites where MTBE is encountered DERR will require investigation and, where appropriate, clean-up of the contamination. Because of its mobility, investigation should be expedited on sites where MTBE is discovered. In addition, innovative approaches to MTBE remediation are encouraged and should be considered when corrective action is required.

New Loan Window Now In Effect

You can still apply for a low interest loan to help you upgrade, replace, or close your underground storage tank. To apply for a loan, submit the loan eligibility application form, available off the DERR website at <http://www.deq.state.ut.us/eqerr/UST.htm> or call Gary Astin or Diane Hernandez at (801) 536-4100.



Site Maps

Site maps are required for most reports that are submitted to DERR.

Some of the most important maps are those submitted with tank closure notices. Unfortunately, incomplete and inaccurate maps are still being submitted

As an owner/operator, you are paying for a service. The certified person whom you have hired should understand what DERR requires in regards to reports, site maps etc. Site maps are very important. DERR uses these maps to determine if samples were taken in proper locations, and if the proper number of samples were taken. If any significant contamination was detected, a case file may be started and regulated by DERR. The map will then be used to see if anything is near the contamination that could be adversely affected. Some things that contamination from a tank could harm are:

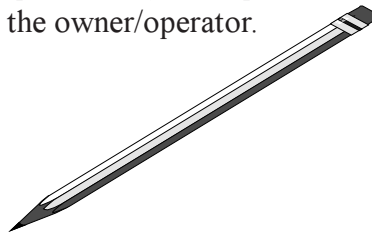
- People in buildings (where contamination is under the building causing toxic vapors),
- Neighboring properties,
- Underground utilities (exposing utility workers and the buildings they go to),
- Water wells: municipal, agricultural, domestic, etc.

If the site map is inaccurate or incomplete, the DERR project manager can not evaluate the site properly.

To determine if a site needs further investigation, cleanup or to close a case file, a DERR project manager must be able to answer to the following:

- * Current land use: residential, commercial, agricultural, etc.
- * Surrounding neighborhood use: residential, commercial, agricultural, etc.
- * Depth to contaminated soil,
- * Groundwater present in the excavation,
- * Groundwater flow direction,
- * Slope direction of the surface,
- * Distance to utilities (water lines, sewer lines, natural gas lines, storm drains, telephone lines, electrical lines),
- * Water wells: municipal, domestic, irrigation, etc.
- * Surface water.

If this information is missing, then it is the owner/operator's responsibility to collect it. Sometimes the missing information is easy to collect, such as surrounding land use or location of utilities. But if samples locations were not properly marked, or samples were collected in the wrong area then additional work by the UST certified person may be required, which could mean further expenses for the owner/operator.



So what does a good site map have? It has all of the following items:

- * Map is drawn to scale, with the scale identified
- * North indicated,
- * Sample locations, identification numbers, depth of samples
- * Well locations,
- * Current and/or former tanks, piping, dispensers,
- * Excavations,
- * Soil stockpiles,
- * Buildings, fences, property boundaries,
- * Utilities,
- * Depth to groundwater if encountered,
- * Slope of the surface,
- * Land use at the site, and surrounding properties

Seldom are all of the applicable items identified on a map submitted to the DERR. You would be surprised how few maps even had an arrow showing north (or any direction) on it. Can you imagine a road map of a foreign country without any compass points? This would not be a very useful map.

I received one site map that only had a rectangle and four X's with sample identifications on it only. I had to use another consultant's map from the past to obtain enough information to send a "No Further Action" letter to the owner/operator who paid for the service of a closure. This owner was fortunate. If the past consultant had not done a proper job at completing a site map, it could have cost the owner more money for a properly completed site map.

Another one of my past sites remained opened for approximately two years after it should have received a "No Further Action" letter. The sampler took and marked confirmation samples on a map, but the sampler identified none of the dozen samples. As luck would have it, the sampler's company went out of business in Utah and refused to return calls. The owner had to arrange for more samples to be taken at the site to receive a "No Further Action" letter. I am sure the owner/operator was not very happy with the company who did not fill out the site map properly and left him holding the bag for the next two years.

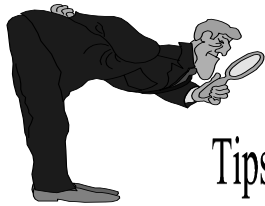
One of the best scaled maps I have seen in more than three years at DERR was hand drawn to scale by a certified sampler. Computers help when drawing maps, but are not required for an accurate map.

The moral of the site map story is that you need to get what you pay for as an owner/operator. Take a few minutes to review for completeness the required forms you have paid to be filled out before you sign them. Ask questions of your selected contractor, and feel free to call DERR with questions. This will save you time in dealing with DERR and probably money in the end. It will definitely save you stress if you make sure the people you hired complete the necessary forms including the map as required the first time.



USTFields Program:

Utah's UST program has been chosen by the United States Environmental Protection Agency (EPA) to serve as a pilot state in EPA Region VIII in a new initiative called "USTFields". This initiative is not a new federal program, but rather an attempt to address otherwise neglected sites. Abandoned service stations or underutilized properties are a common sight in almost every city throughout the country. Redevelopment of these properties can be complicated by perceived or known environmental contamination where questions remain on liability and cleanup costs. The goal of the USTFields pilot program is to develop a site-specific process to foster redevelopment and to restore abandoned UST sites or underutilized properties with environmental contamination back to productive use. The USTFields program utilizes risk-based decision making as a tool to facilitate site cleanup and closure to minimize future liability for all stakeholders involved.



Inspection Tips

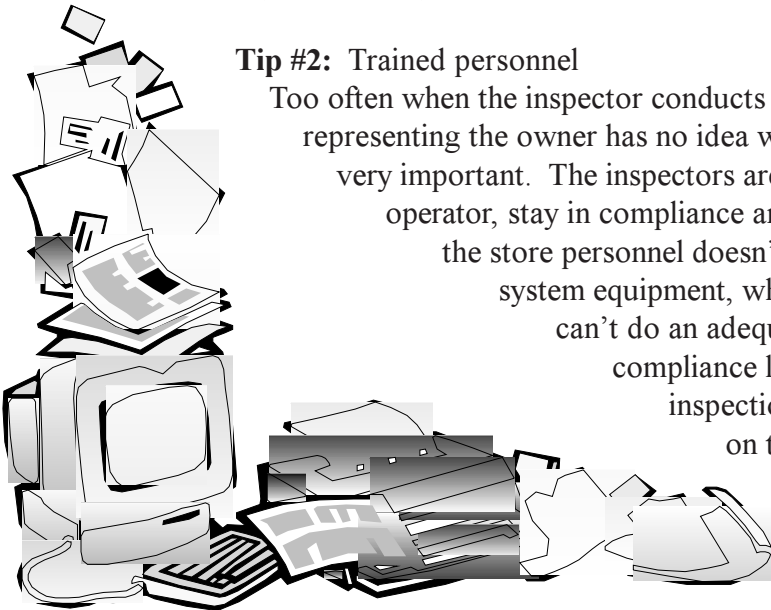
Tips for a better UST compliance inspection.
What can I do to have a worry-free inspection?

Tip #1: Maintaining Automatic Tank Gauging Monthly Reports.

At least once every month you are required to run your ATG in the "test" mode. But what do you do with those printed reports? One of the biggest complaints that UST Inspectors have is that when they go to inspect the monthly ATG reports, the reports are either lost, torn, misplaced or in a heap on the floor! To make it easier on you and the inspector, organize those reports. Organizing your ATG reports can be as simple as getting a binder with envelopes. Each month when you print out your reports, place them in an envelope and put the date on it. Keep a current year in the binder. Once the records are over a year old, put them in a storage box. You will want to include in that binder a copy of the manufacturer's instructions, any repairs done to the system and the 3rd party documentation. When the inspector comes to look at your records, everything you need is in that binder. The system you use is not important. What is important is that all your monthly leak detection records are in one place in an orderly fashion.

Tip #2: Trained personnel

Too often when the inspector conducts a compliance inspection, the store personnel representing the owner has no idea what is going on. Compliance inspections are very important. The inspectors are looking for ways to help you, the owner/operator, stay in compliance and to minimize the potential for costly leaks. If the store personnel doesn't understand the release detection system, tank system equipment, where the records are kept, etc. the inspector can't do an adequate inspection, which results in annoying compliance letters and re-inspections. Put compliance inspections in the most responsible hands. Do not rely on the vigilance of part-time or under-trained employees. If you need help with preparing for compliance inspections contact the UST scientist in your area.



New Underground Storage Tank Pamphlets!

We recently updated our Leaking Underground Storage Tank Pamphlets and Guidebooks and added new pamphlets about the Underground Storage Tank Section.



Utah's Leaking Underground Storage Tank Program
Utah's Petroleum Storage Tank Fund:
Site Investigation and Monitoring Guidelines
Utah's Risk-Based Corrective Action Program
Cleanup Technologies For Petroleum Releases

New UST Pamphlets

Underground Storage Tanks- A Utah Program Overview
Installing An UST
How to Obtain a Certificate of Compliance
Release Detection Requirements
Getting The Most Out Of Your Automatic Tank Gauging System
Getting The Most Out Of Your Statistical Inventory Reconciliation
Secondary Containment With Interstitial Monitoring
How To Have A Successful Inspection
Closing Underground Storage Tanks

These pamphlets are available free of charge. To obtain copies either pick them up at the DERR office at 168 North 1950 West in Salt Lake City or call (801) 536-4100.

New Analytical Methods

The new analytical methods for environmental analyses are now in-place and are being enforced by the UST Branch. Environmental samples analyzed using outdated laboratory methods will be considered as screening information only (e.g., the same way a field instrument, such as an organic vapor monitor, are used for making preliminary decisions). For compliance and closure purposes, the new analytical methods must be used for any sample analyzed after **March 1, 2000**.

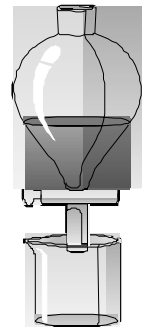
Clarification on some of the more frequently asked questions are outlined below:

Sampling for gasoline releases:

- A purge and trap method can be used for the determination of all contaminants of concern (e.g., BTEXN, MTBE and TPH (GRO)) by doing either 8021B and 8015B; **OR** by analyzing the sample using 8260B.
- TPH must now be reported as "TPH as gasoline range organics C₆ - C₁₀".

Sampling for diesel releases:

- A purge and trap method can only be used for the determination of BTEXN.
- An extraction method must be used for the determination of TPH (DRO).
- Allowable methods are 8015B and 8021B, **OR** 8015B and 8260B.
- TPH must now be reported as "TPH as diesel range organics C₁₀ - C₂₈".



* Check with your sampler and/or laboratory to see if sample volume has changed to ensure enough sample is collected during sampling events.

Call any of the UST Branch scientist with any questions you may have at (801) 536-4100.



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UST 2000 Conference

April 13th & 14th

Ogden Eccles Conference Center
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for Owners/Operators & Consultants

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