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Developing an RBSL for MTBE in Delaware

by Pat Ellis

The Underground Storage Tank Branch recently issued the "final working draft" of the Delaware Risk Based Corrective Action Program (DERBCAP) guidance. In developing RBSLs or Risk Based Screening Levels for various chemicals of concern, conservative assumptions were made using generic parameters representative of mid-Atlantic Coastal Plain geology. The following statewide assumptions were used to develop Tier 0 action levels and Tier 1 RBSLs:

- Grab soil samples are assumed to be collected at the top of the water table,
- Groundwater is assumed to be used for drinking water
- Current land use is assumed to be residential, and
- Soils are assumed to be well sorted, permeable, fine to medium-grained sand.

The DERBCAP Tier 1 RBSLs are determined by distance from source to a point of exposure (POE) or point of compliance (POC) for each chemical of concern (COC), thus including a fate and transport component in the RBSLs.

RBSLs were calculated using software developed by Groundwater Services, Inc. (GSI). The customized features of the DERBCAP Module to the RBCA Tool Kit for Chemical Releases include variable-distance Tier 1 calculations, Delaware-specific default input parameters and chemical data, and a soil-to-groundwater cross-media transfer model used to simulate the groundwater impact resulting from the periodic submergence of contaminated soils by a fluctuating water table.

The model calculates natural attenuation of each COC as the sum effect of various physical mechanisms, including natural *dilution*, caused by advection and dispersion, and *attenuation*, caused by sorption, hydrolysis, biodegradation, and other physical/chemical phenomena.

Because the chemical properties of MTBE differ significantly from many of the components of gasoline, and based on experiences with the behavior of MTBE in Delaware soils and groundwater, MTBE Tier 0 action levels and Tier 1 RBSLs are calculated differently than the default method in the GSI Tool Kit.

MTBE is extremely soluble (pure MTBE is about 30 times more soluble than benzene in water), does not sorb well to soils, and is resistant to biodegradation. It also has an extremely low taste and odor threshold.

Because MTBE does not biodegrade easily, the biodegradation factor in the Delaware Module was toggled off when calculating the DERBCAP Tier 0 MTBE action level and Tier 1 MTBE RBSL. Based on experience with MTBE plumes in Delaware and to be sufficiently protective of groundwater not only for potential health effects but also to minimize potential aesthetic impacts to drinking water supplies, the values calculated by the model in this manner were then cut in half. These deviations from the default values allowed the UST Branch to calculate an action level and RBSL for

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MTBE that should protect against taste and odor impacts to supply wells. Please note that these numbers are action levels, and are not necessarily cleanup levels. Cleanup levels will be assigned to sites on a site-by-site basis based upon distances to actual or potential receptors and the types of receptors.

The Tier 0 Action Level for MTBE is 130 µg/kg (parts per billion) in soil or 0.13 mg/kg (parts per million).

The following table represents the allowable concentrations in source area at varying distances to POE.

Tier 1 RBSLs for MTBE (mg/kg)

Distance to POE	Soil	Groundwater
<50'	0.13	0.18
51-100'	0.16	0.24
101-300'	0.39	0.56
301-500'	2.9	4.2
>500'	7.9	12.0

DERBCAP Guide Now Available

The final working draft of the DERBCAP guidance (The Guide) was issued in October 1999.

The *Guide* will be finalized in January 2000 based on comments received through December 1999. Call the UST Branch anytime to discuss any questions or comments about the *Guide.* Written comments must be sent to the UST Branch by December 31, 1999 for consideration in the final *DERBCAP Guide.*

The *Guide* is available in electronic format from the UST Branch at no cost. A limited number of printed copies are also available. The software is available as a customized supplement to the RBCA Toolkit from Groundwater Services, Inc. of Houston, TX. Contact Groundwater Services at 713-522-6300 for purchasing information.■

Pay for Performance Site Cleanups

By Frank Gavas

Pay for Performance is a concept that is new to most people. In the past, Responsible Parties and State Fund programs involved with cleanup of LUST sites paid for a consultant's time and materials to clean up the site. In pay for performance contracts the consultants are paid only when they meet agreed upon milestones and cleanup goals.

Some states have implemented the use of pay for performance cleanup agreements at LUST sites to promote rapid, more efficient and more cost effective remediation. Delaware's UST Branch is currently soliciting input and gathering information on pay for performance cleanups.

Pay for performance agreements reward remediation results by setting performance goals, prices and payment terms for cleanups, in advance, thereby providing the State and the responsible party a vehicle to more actively control the cost of a cleanup.

Pay for performance agreements can be used in contracts between state agencies and consultants at state lead and state fund eligible sites, in state policies that set cleanup costs and terms, and in private contracts between responsible parties and cleanup contractors.

The Branch is planning a pilot study of pay for performance at select ECDI fund eligible and state lead sites in the near future. The study will likely be followed by a pay for performance workshop. Those who have experience with the pay for performance concept are encouraged to share your experiences and concerns with the UST Branch.■

Potential AST Problem

by Peter Rollo

At this time DNREC does not regulate Above Ground Storage Tanks (ASTs) but there is a potential problem we need to be aware of. ASTs use anti-siphon valves located on top of the tank. These valves are generally not recommended to be used outdoors unprotected.

In very cold weather moisture in the fuel could freeze in the valve and immobilize the poppet. Two possibilities exist if this happens. The most likely result is that the valve would be frozen in the closed position and the suction pump will fail to open the valve. This will result in fuel not being able to flow from the tank.

The second possibility, potentially dangerous to the environment, is that the valve could freeze in the open position resulting in uncontrolled fuel flow leading to release of the fuel. To solve this potential problem manufacturers recommend some method to heat the valve (i.e., heat tape) to keep the valve temperature above freezing.

As more and more ASTs are installed, we all need to be aware of this problem before serious operational difficulties become apparent during very cold weather.■

Alternative Compliance Property Transfer Policy

by Jill Hall

Delaware's *Regulations Governing Underground Storage Tank Systems* (the Regulations) Part C, Section 3.06 allows Heating Fuel tanks with a capacity of greater than 2,000 gallons and less than or equal to 8,000 gallons an alternative means of complying with regulatory requirements. Since the alternative compliance category is relatively new the UST Branch has only recently encountered a situation where a new owner wants to keep the Alternative Compliance status for a tank after a property transfer.

The following policy covers this situation.

POLICY FOR TRANSFER OF ALTERNATIVE COMPLIANCE STATUS AT TIME OF TRANSFER OF TANK OWNERSHIP

UNDERGROUND STORAGE TANK BRANCH

SEPTEMBER 21, 1999

A property transfer involving a Heating Fuel tank(s) that was entered in the alternative compliance program by the previous owner **will not automatically continue to be considered a participant in the alternative compliance category**. To continue in the alternative compliance category **the new owner must submit a written request** to do so.

The written request must include a new agreement between the heating fuel distributor and the new owner even if the heating fuel distributor remains the same. And, the new owner must submit proof that the tank and all lines are tight.

You have three options available to meet this requirement:

1. Soil borings as required to enter the alternative compliance category initially.

-OR-

2. Perform a precision test third party certified by EPA and approved for heating fuel *tanks, return and supply lines.*

-OR-

3. Submit manual tank gauging records from the previous owner from the date of entrance into the category until the present time.

After review of the above information the Department will notify the new owner in writing of acceptance or rejection of the UST(s) into the alternative compliance category. If rejected the new owner will have 60 days to bring the tank into compliance with the Regulations.

If approved, the manual tank gauging records for each calendar year (January 1 - December 31) must be submitted to the UST Branch, 391 Lukens Drive, New Castle, DE 19720, by February 1 of the following year for review. Failure to submit appropriate records will result in revocation of the alternative compliance status and require immediate compliance with all applicable laws, rules and regulations.■

Vapor Line Shear Valve

by Colin Gomes

The UST Branch highly recommends the installation of a vapor line shear valve in all Stage II Vapor Recovery Systems. This valve acts as a weak section between the dispenser and the vapor return line. It is designed to eliminate the flow of vapors in the event of impact or displacement of the dispenser.

The National Fire Protection Association (NFPA) Code 30A, 1996 Edition, section 4-3.7 allows the optional installation of a vapor shear valve in conjunction with the liquid shutoff valve. The CARB approved the installation of the vapor shear valve after its compatibility was verified through testing.

In case of an accident, the UST Branch believes that, the installation of this valve will greatly increase the safety of the public. In addition, the valve may limit damage to the underground portion of the vapor recovery piping. The CARB approved valve will feature an air test port. This accessory will allow Testing Contractors quick and easy access to the vapor recovery system in order to perform the required pressure decay test.■

Back to the Future

by Colin Gomes

Beginning January 2000, the Department will require the revised 10" Pressure Decay Test (San Diego County Test Procedure 96-1). The Department will no longer accept the 2" Pressure Decay Test (TP 201.3). For the past 14 months TP 201.3 was allowed on an experimental basis. During this time the UST Branch observed the test and investigated alternative procedures, and concluded that the 2" test is not adequate to detect leaks in the system.■

THINK TANK

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Announcements

Denise Ferguson-Southard was appointed Director of the Division Of Air And Waste Management on October 18, 1999, replacing Nicholas A. DiPasquale who was appointed Secretary of the Department. She has been chief counsel to the Maryland Department of the Environment since July 1993, where she advised and represented the Secretary on departmental environmental issues and programs, including hazardous waste, state superfund, underground storage tanks, oil and air pollution, solid waste, water pollution and recycling. Prior to joining MDE, she served as assistant enforcement counsel with the U.S. Environmental Protection Agency, trial attorney with the U.S. Department of Justice and Assistant United States Attorney with the United States Attorney's Office. She received a Juris Doctorate from Harvard Law School and a Bachelor of Arts from Wellesley College, where she majored in Economics and Political Science.

Mick Butler, program manager for the UST compliance group since 1992, accepted a position with the Maryland Department of the Environment as the Administrator of the Oil Control Program. We wish him well in his new position.

Matthew P. Lesley, Hydrologist III, with the LUST group received his Delaware Professional Geologist license in August, 1999. Always the student, Matt is currently pursuing a Masters degree in Environmental Engineering at the University of Delaware.

Orphan Tank Fund Authorized - June 30, 1999 the General Assembly authorized funding for remediating orphan USTs. USTs that are determined to have no owner, operator, or responsible party as defined by the State UST law would be eligible. Elements of the program are currently under development. The program is expected to be ready to implement later in 2000.

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