REPORT ON INTER-AGENCY MEETINGS

ON MTBE

September 2000

Background

In response to Executive Order No. 00-08, two meetings of various state agencies involved in the MTBE situation were organized by the Executive Director of the Petroleum Storage Tank Insurance Fund. The purpose of the meetings, held on June 14, 2000 and July 18, 2000, was to review what each agency is currently doing, to "brainstorm" how state government can improve its current programs and activities to assure that the risk of MTBE damage to the environment and the public health is minimized, and to determine how these improvements can be implemented. Participants were: Department of Health, Department of Agriculture, Department of Natural Resources, Petroleum Storage Tank Insurance Fund, and Attorney General's Office. (A list of personnel in attendance at each meeting is enclosed as Appendix C.)

Current Status of State Programs, Response Capability, Communications and Record Keeping

Department of Health (DOH)

The agency has no specific regulatory authority over MTBE; it does have authority to regulate restaurants and other locations where water quality is an issue in products offered for public consumption, and can close down any facility where unsafe water is being offered. The agency has no authority to regulate private water wells, although it receives periodic requests from landowners or local health agencies to test the quality of private well water. Those requests are coordinated by the **Section for Environmental Public Health (SEPH)**, who uses the services of the State Health Lab. The Lab currently has no capability to analyze water samples for MTBE, although the necessary equipment has been purchased and is expected to be installed in FY01. SEPH currently uses DNR's lab when it needs to analyze water samples for MTBE.

Department of Health has six district offices; personnel are trained in water sample collection procedures and are available as needed to collect and ship water samples.

The agency has a Memorandum of Understanding (MOU) with DNR. DOH's responsibility is "risk assessment;" DNR's responsibility is "risk management." Personnel from the two agencies often work together when there is an environmental emergency involving a threat to the public health.

Department of Agriculture (DOA)

Two programs include MTBE-related tasks, both authorized by Chapter 414, RSMo. The **Fuel Quality Program** regulates the oxygenate content of petroleum fuels; it collects samples of all petroleum products sold in the state, and analyzes those samples to assure conformance with ASTM standards. As part of that analysis, the Program measures oxygen content, and has determined the percent by volume of MTBE in all fuel samples collected from retail gasoline stations since 1995. Approximately 55% of fuel outlets are checked annually. Samples are analyzed within 24 hours of collection. Results are stored on an IBM AS400 computer system, in software written in RPG. Fuel quality data is associated with the facility from which the sample came. Considerable historical data on MTBE is available.

The **Petroleum/Propane/Anhydrous Program** inspects all retail fuel outlets and bulk plants twice a year. Facilities are evaluated for compliance with national fire and safety codes and the program's own regulations, which include requirements for safe electrical systems, monitoring fuel inventory, secondary containment for aboveground tanks, emergency vents, etc. When violations are found, a Notice of Violation is issued and a follow-up inspection is conducted to confirm the violations have been corrected. Twenty petroleum inspectors are located across the state, providing fast response capability. Inspectors have authority to shut down any operation instantaneously if a serious health or safety risk exists, and often work with DNR emergency response personnel when sudden leaks/spills occur or are discovered.

Inspections records are maintained for three years in software written in RPG and stored on an IBM AS400 computer system. Facility records use the same facility identifier as the Fuel Quality Program; GIS data is not currently stored, but GPS equipment is being purchased and the program plans to obtain and enter latitude/longitude data for each facility.

Department of Natural Resources

DGLS – The **Division of Geology and Land Survey** (DGLS) regulates well drillers and construction of wells, including public and private drinking water wells. The Division has authority to require the proper plugging and abandonment of any well that poses a threat to groundwater, and can also require reconstruction of improperly-constructed wells. The Division has various pieces of heavy equipment for drilling and sampling subsurface soils and water, and for geophysical and/or seismic study of subsurface geology. Personnel are trained in proper procedures for collection of soil and water samples.

DGLS maintains several databases, including drillers' logs, various geologic and hydrogeologic information, locations of springs, etc. All are PC-based; many use ArcInfo software. Some of the databases contain GIS information; others do not. It is estimated that approximately 70-75% of drinking water wells, and 60% of all wells, (including those used for irrigation, monitoring, etc.) being drilled today are reported and recorded by DGLS, and that 30% of all wells that exist in Missouri are in the DGLS database.

DEQ – The **Division of Environmental Quality** houses various environmental regulatory programs; six of those programs relate to MTBE. The Division also has six regional offices; all have staff who are trained in the proper collection of water, air and soil samples.

The **Air Pollution Control Program** has authority to regulate vehicle emissions and is responsible for preparing the State's Plan for meeting federal air quality standards. Fuel content specifications – including the use of Reformulated Gasoline in the St. Louis metropolitan area -- is one of several tools identified in that plan for improving and maintaining air quality.

The **Water Pollution Control Program** has authority to set water quality standards for surface water and groundwater. Known sources of pollution are regulated by the issuance of permits and are inspected. Routine sampling and analysis of surface waters is accomplished via 73 sampling stations, which are monitored 6-12 times annually; however analysis for MTBE is not routinely included. No routine monitoring of groundwater quality is done.

The **Environmental Services Program** (ESP) operates the state's "Emergency Spill Line," which receives calls reporting petroleum spills, including transportation-related incidents and sudden occurrences at storage facilities. The Environmental Emergency Response capability is a formal part of the State's Emergency Response Plan, coordinated by The State Emergency Management Agency. The Program has staff and equipment available to go to sites as needed. Historical data on petroleum spills is maintained in a PC-based database; it is estimated 40-50% of calls to the "Spill Line" involve petroleum. During FY00, ESP received 405 reports of gasoline leaks/spills, of which 38 were transportation related.

ESP also operates a laboratory and analyzes air, water and soil samples for other DNR programs. The lab has the capability to analyze for MTBE in water and air samples. Results are maintained in a PC-based database, identified by sample number and other criteria; geographic location from which the sample was maintained is not available directly from the database.

The **Public Drinking Water Program** (PDWP) issues permits and monitors public water supplies; it has no authority over private wells. It regulates 1,444 community water supplies, 241 non-transient, non-community systems, and 1,055 transient, non-community systems. The first two types of water supply systems are checked once every three years if they use groundwater and annually if they use surface water. PDWP has been testing these for MTBE since 1995. Three public water supplies, involving four wells, have been found to contain MTBE. No federal or state standard for MTBE in drinking water exists; however, the US EPA has established a taste and odor threshold of 20-40 parts per billion (ppb) and is planning to issue a regulation to establish a maximum allowable level for drinking water. Nevertheless, PDWP takes action when MTBE or other contaminants are detected. Transient, non-community systems are only checked for bacterial and nitrate contamination; no MTBE analysis of these systems has been done to date.

Data on water supply systems is maintained in a PC-based program; latitude/longitude information on all systems, including wells, is available. The Program is working with DGLS to better define the watersheds and subsurface sources which provide the water used by public water supply systems. In addition, PDWP has contracted with University of Missouri-Rolla to evaluate the effectiveness and costs of various technologies for removing MTBE from water.

The **Hazardous Waste Program** regulates the operation of underground tanks storing petroleum, and regulates the cleanup of contamination from both underground and aboveground storage tanks. The program has identified over 5,500 sites where petroleum contamination from a tank leak or spill exists in either soil or groundwater; more than 4,000 of those have been cleaned up. Since 1996, technical reports on cleanups have been required to provide data on MTBE in soil and groundwater; that data is not assembled in a database at this time. A review of a limited number of files is underway to estimate how frequently MTBE is found at sites where tank operations have resulted in petroleum contamination.

The program's database of underground tanks include data on all sites where tanks are still in operation and all sites where a tank leak/spill has been reported; most of the sites are identified by longitude and latitude. About one-third of operating underground tank sites are physically inspected annually, which includes a review of various documents demonstrating proper operation and monitoring of the tank system.

Petroleum Storage Tank Insurance Fund (PSTIF)

PSTIF insures owners of underground or aboveground tanks where petroleum is stored against the costs of cleanup and third-party damages associated with leak or spills that occur or are discovered while the insurance is in effect. To obtain insurance coverage, tank owners must demonstrate compliance with regulations governing their operations; PSTIF staff conduct a "paper inspection" when the owner applies for insurance coverage and annually thereafter to assure that the owner is checking his tanks and piping regularly for leaks, and is operating and maintaining his tank system properly. Physical site inspections also are conducted on 10% of insured sites annually.

If an insured tank owner has a leak/spill, PSTIF investigates the claim and pays for cleanup, as required by DNR. Claims adjusters located in four offices are available to visit any insured site where a leak/spill has occurred to communicate with the owner, document events and collect pertinent information. In cases where petroleum is discovered in a well, and no one knows the source, PSTIF's claim investigation may include compilation of data on possible sources and other wells at risk, and sampling or field activities to document the extent of the problem.

PSTIF also pays to clean up certain old tank sites, where underground or aboveground tanks are no longer in use, subject to certain statutory criteria. For any site which is eligible under the law, and is contaminated by petroleum from a tank, PSTIF pays for investigation and cleanup activities, whether MTBE is present or not. Numerous sites where MTBE has been detected in soil or groundwater are currently being cleaned up with PSTIF funds.

Summary of Findings

Petroleum Spills and Leaks

- State records contain information on more than 5,600 properties where petroleum has been spilled or leaked from a tank or during delivery of fuel to the tank. More than 4,000 of those sites have been cleaned up.

- State records contain information on more than 15,000 properties where petroleum has been stored, and thousands more transportation-related accidents involving petroleum.

- To date there are 18 known situations where MTBE from one of these incidents has affected a drinking water supply.*

- This indicates that in most cases, cleanup of petroleum spills/leaks is done in a timely manner, before contamination migrates to drinking water supplies. Favorable soil and geologic conditions in parts of the state also tend to mitigate the effects of spills/leaks. In addition, regulators, water suppliers and property owners have been diligent in assuring that wells are properly drilled and cased to minimize infiltration of contaminants.

- The Petroleum Storage Tank Insurance Fund has made payments for cleanup at about 900 sites, and cleanup is still underway at many of these. MTBE is a contaminant in soil or water at about one-third of these sites, although rarely poses a threat to drinking water.

Water Supplies

- State regulators require sampling and analysis of all public water supplies where water is provided to people on a regular, ongoing basis. (i.e., community water supplies and non-transient, non-community systems.) All such water supplies have been analyzed for MTBE; problems have been found.

- State government has no authority to require regular sampling or analysis of private well water; therefore, it is not possible to conclusively know whether MTBE has affected private wells. The primary means of discovering problems of this nature are individual citizen complaints about taste/odor.

- There also are 1055 transient, non-community water supply systems (e.g., resorts, restaurants, truck stops, convenience stores, campgrounds) that have not been analyzed for the presence of MTBE.

- Experience to date indicates that most MTBE contamination of drinking water is from old sites where petroleum was stored or spilled in the past. Enhanced regulatory requirements

* To date, three public water supplies (involving four wells) and 28 private wells have been impacted by MTBE.

and oversight of operating tank sites has reduced the risk of leaks occurring over a period of time and going undetected; while there is still some risk of MTBE contamination from operating tank sites, it is substantially less than that posed by old sites.

Preventing and Cleaning Up Contamination from Storage Facilities Today

- Current state programs and resources provide a reasonable level of protection to Missouri citizens in terms of preventing exposure to MTBE from locations where petroleum storage tanks are currently in use. Inspection programs in the various agencies are designed to assure that petroleum storage facilities are operated in a safe manner, and that reasonable steps are taken to prevent leaks and spills.

- In Missouri, there is not a single documented case to date of a leak from an underground tank – where the owner is conducting regular monitoring and the tank meets the 1998 upgrade standards – causing MTBE contamination of a drinking water source.

- All operating underground storage tank sites are required to have a "financial responsibility mechanism" in place to pay for cleanup of spills/leaks and third-party damages. Therefore, money should be available to investigate and clean up any MTBE contamination from leaks/spills from underground storage tanks in operation today.

- No similar insurance requirement exists for aboveground tanks.

Recommended Actions

In spite of the relative success of Missouri's programs for preventing petroleum contamination and cleaning it up when it does occur, it is prudent to evaluate current programs and resources to determine where improvements can be made. The group who gathered to do this evaluation identified a number of possible actions which could be taken. Some were subsequently discarded as low priority items. The remainder were then separated into three categories:

A. Actions which can be taken at the present time, using currently-available resources and personnel;

B. Actions which will require additional funding, and may be appropriate for funding from the Petroleum Storage Tank Insurance Fund; and

C. Actions which cannot be funded by PSTIF, and will require funding from other sources.

A. *Actions which can be taken at the present time:*

Below is a list of ideas generated by the group discussion, and a brief description of follow-up actions to be taken. *These are not listed in priority order.*

1. **Improve employee training on leak detection systems at underground tank sites, so there is a greater assurance that leaks will be identified and responded to in a timely fashion.** Some training opportunities already exist. It was noted that private associations, such as the Missouri Association of Petroleum Marketers and Convenience Stores, may assist in organizing such training programs.

2. **Improve the effectiveness of inspections of operating tank sites** by comparing what items are being checked by PSTIF, by DNR, and by Department of Agriculture, then determining what "gaps" exist and how those gaps can be filled. A private environmental consultant who attended the meetings has offered to lead this effort, and will meet with appropriate agency personnel in the next 3-6 months to complete this project.

3. **Target inspections of petroleum storage facilities** in the St. Louis area, where much of the gasoline now contains MTBE, and in south central and southwest Missouri, where drinking water supplies are at greater risk due to the geology in that part of the state. (Department of Agriculture will identify those areas of the state where MTBE is currently being used in gasoline, and will target its own inspections to make sure all facilities are inspected semi-annually in those areas. DNR is evaluating its current inspection program, and may shift some resources or request additional resources.

4. **Revise existing guidelines for cleanup of MTBE.** This will be accomplished by DNR during FY01 by revising its Closure Guidance Document, which establishes cleanup standards, and issuing regulations governing the cleanup of petroleum spills/leaks from aboveground tanks.

5. **When spills or leaks occur as a result of negligence or defective workmanship by equipment manufacturers or contractors, sue the responsible party.** PSTIF has this authority, if the problem occurs at a site it insures, and will aggressively pursue this recourse. The Attorney General's Office may have independent authority to initiate such suits, and will evaluate this possibility further.

6. **Complete the compilation of data from Leaking Underground Storage Tank Site files to determine how frequently MTBE appears in the soil or groundwater when a petroleum spill/leak occurs.** This project is underway, and will be completed by DNR staff by December 2000.

7. **Improve coordination and communication among various state agencies when a citizen complaint results in discovery of MTBE in a private drinking water well.** PSTIF personnel will follow up with DNR, Department of Agriculture and Department of Health personnel to assure that standard communication links are established, and to clarify roles and responsibilities.

8. **Identify methods to motivate property owners to properly close abandoned water wells, particularly those located near or on old tank sites or spill sites, to eliminate potential pathway for MTBE contamination to groundwater.** DNR's Division of Geology and Land Survey will follow up on this idea by conducting further discussion with DNR tank staff, Department of Agriculture inspection staff, and PSTIF claims staff to review possible methods of identifying such situations and formulate a strategy for contacting the property owner.

9. **Evaluate whether legislation should be proposed to repeal Section 643.055.1, RSMo.** DNR will take this question under advisement, and will discuss it further with the Attorney General's Office.

B. ***Actions which will require additional funding, and may be appropriate for funding from the Petroleum Storage Tank Insurance Fund (PSTIF)***

The Petroleum Storage Tank Insurance Fund is governed by a Board of Trustees, who are bound by law to act in a fiduciary capacity for the Fund. In addition, the purposes of the Fund are specified by statute, and the Board is limited to spending monies from the Fund in support of those purposes.

The following ideas were identified as ones which may merit consideration by the Board. *These are not listed in priority order.*

1. **Improve the base of knowledge about current MTBE contamination and the risk of future contamination to drinking water sources by assembling and organizing existing data.** This could include such things as accelerating a groundwater mapping project currently underway by DNR's Division of Geology and Land Survey; using available data to prioritize groundwater recharge areas; assembling and analyzing data on prior tank releases and using GIS data to map them; analyzing data available from Department of Agriculture on where gasoline containing MTBE has been distributed and/or sold in Missouri in the past; and/or analyzing available data from the Department of Agriculture to provide current information on where gasoline containing MTBE is stored. This idea will be further discussed and considered by DNR, with the possibility that a specific funding request will be presented to the PSTIF Board of Trustees at its meeting in September.

2. **Increase the frequencies or content of inspection of underground tank sites.** This idea will be further discussed and considered by both DNR and Department of Agriculture, with the possibility that one or more specific funding requests will be presented to the PSTIF Board of Trustees at its meeting in September. (See A.2 on page 7 also.)

3. **Conduct or finance additional research on technologies for removing MTBE from groundwater.** Various parties involved in the meetings will consider whether to make a specific funding request to the PSTIF Board of Trustees.

C. ***Actions Which Would Require Funding From Other Sources***

Some of the possible actions or tasks identified by the group clearly require additional resources, beyond those currently available. Due to the statutory limitations on the Petroleum Storage Tank Insurance Fund, it is not possible to finance these actions from PSTIF. These ideas are listed below, *and are not in priority order.*

1. **Collect and analyze water samples from private wells in those areas of the state where the wells tap shallow aquifers which are considered to be most vulnerable to contamination.** DNR, in conjunction with Department of Health, will further evaluate this possibility to determine if it is feasible, and what funding sources might be utilized.

2. **Collect and analyze water samples from transient, non-community water supplies to determine if MTBE contamination exists.** (These water supplies are routinely monitored for nitrates and bacteriological contaminants, but not MTBE.) DNR will evaluate this possible project to determine if it is feasible, and what funding sources might be utilized.

3. **Improve installation practices and services of petroleum storage facilities to assure that tanks, piping, valves, and other equipment are installed in such a way as to minimize the risk of future leaks.**

4. **Improve driver and employee training in the petroleum transportation and delivery system, so spills during transport and delivery are minimized.**

Future Reports

The Petroleum Storage Tank Insurance Fund will report monthly on the amount of money it spends to clean up petroleum-contaminated sites. These reports will separately identify expenses incurred at sites where MTBE has affected drinking water wells or poses an imminent threat to drinking water; these costs will be funded with the special appropriation provided in the FY01 budget. The reports will be posted on PSTIF's web page at www.pstif.org, and will be provided in writing to the Governor's Office and Legislative Appropriations Committees.

In addition, any special projects funded by the Board of Trustees through the special appropriation provided in the FY01 budget will be described in the PSTIF monthly reports.

The Department of Natural Resources maintains a web site where information concerning MTBE can be readily accessed.

Appendix A
Federal Developments

Funds for Cleanup -- There is a federal fund, called the "LUST (Leaking Underground Storage Tank) Trust Fund," financed by a tax on petroleum of $1/10^{th}$ of a cent per gallon; it was established for the purpose of cleaning up contamination from underground petroleum tanks. Recent Congressional concern about MTBE has resulted in proposals to increase the appropriation from that fund from $70 million to $79 million.

Missouri typically receives about $1.0-1.4 million annually from this appropriation, via a Cooperative Agreement with EPA. If Congress increases the federal appropriation, it is expected that Missouri's share of this federal fund will also increase, although it is not known if or when this will occur.

The use of money from the federal LUST Trust Fund is limited by the federal statute authorizing the fund. Currently, it can only be used for activities involving leaks or spills from underground tanks. Legislation has been introduced in Congress to amend the authorizing statute so that these funds can be used to address MTBE contamination, even if the source of the contamination is unknown or is not an underground tank.

The various proposals under consideration by congress may be reviewed at http://thomas.loc.gov.

Required Use of MTBE and Oxygenate Requirement in Fuel – Legislation has been introduced to eliminate the use of MTBE in gasoline, and/or to allow states to waive the oxygenate requirement currently imposed by federal law in areas with air quality problems. Some versions of these proposals require the use of renewable fuels, such as ethanol, in place of the oxygenate requirement. It is not anticipated that Congress will enact such legislation this calendar year.

Money for Drinking Water Systems – Legislation has been introduced to authorize the Secretary of Agriculture to make grants to assist low and moderate income individuals in financing the construction, refurbishing, and servicing of individual household water well systems in rural areas. (HR3910)

Appendix B
State Legislative Developments

Various bills were introduced in the 2000 session of the Missouri General Assembly to ban the use of MTBE in gasoline, to require labeling of dispensers where gasoline containing MTBE is sold, and to require the use of ethanol as an oxygenate. None were enacted.

Appendix C

List of Attendees – June 14, 2000

TIM DUGGAN, Assistant Attorney General, Attorney General's Office
BILL DULEY, Geological Survey Program, Div. of Geology and Land Survey, Department of Natural Resources
DOUG EDWARDS, Environmental Services Program, Div. of Environmental Quality, Department of Natural Resources
CAROL R. EIGHMEY, Executive Director, Petroleum Storage Tank Insurance Fund
JIM FELS, Geological Survey Program, Div. of Geology and Land Survey, Department of Natural Resources
ED GALBRAITH, Tanks Section, Hazardous Waste Program, Div. of Environmental Quality, Department of Natural Resources
MIMI GARSTANG, Div. of Geology and Land Survey, Department of Natural Resources
ERIC GIROIR, Air Pollution Control Program, Div. of Environmental Quality, Department of Natural Resources
PETER GOODE, Air Pollution Control Program, Div. of Environmental Quality, Department of Natural Resources
RON HAYES, Program Administrator, Department of Agriculture
BOB HENTGES, Regional Office Director, Department of Natural Resources
RON HOOKER, Program Administrator, Department of Agriculture
CINDY KEMPER, Hazardous Waste Program, Div. of Environmental Quality, Department of Natural Resources
ROBERT KRAVITZ, Midwest Environmental Consultants
ROBERT J. LEONE, Missouri Petroleum Marketers & Convenience Store Association
JIM LONG, Environmental Services Program, Div. of Environmental Quality, Department of Natural Resources
JOHN MADRAS, Water Pollution Control Program, Div. of Environmental Quality, Department of Natural Resources
RANDY MALEY, Div. of Environmental Health & Communicable Disease Prevention, Department of Health
GARY MCNUTT, Division of Environmental Health & Communicable Disease Prevention, Department of Health
TERRY M. NICHOLS, Petroleum Storage Tank Insurance Fund
KELLEY OGLETREE, Missouri Oil Council
DAVID PATE, Third-Party Administrator, Petroleum Storage Tank Insurance Fund
ROGER RANDOLPH, Air Pollution Control Program, Div. of Environmental Quality, Department of Natural Resources
TERRY TIMMONS, Public Drinking Water Program, Div. of Environmental Quality, Department of Natural Resources
PAT VUCHETICH, Third-Party Administrator, Petroleum Storage Tank Insurance Fund
JOHN YOUNG, Div. of Environmental Quality, Department of Natural Resources

Appendix C – Continued

List of Attendees – July 18, 2000

TIM DUGGAN, Assistant Attorney General, Attorney General's Office
DOUG EDWARDS, Environmental Services Program,
Div. of Environmental Quality, Department of Natural Resources
CAROL R. EIGHMEY, Executive Director, Petroleum Storage Tank Insurance Fund
JIM FELS, Geological Survey Program, Div. of Geology and Land Survey,
Department of Natural Resources
ED GALBRAITH, Tanks Section, Hazardous Waste Program,
Div. of Environmental Quality, Department of Natural Resources
MIMI GARSTANG, Div. of Geology and Land Survey, Department of Natural Resources
ERIC GIROIR, Air Pollution Control Program, Div. of Environmental Quality,
Department of Natural Resources
PETER GOODE, Air Pollution Control Program, Div. of Environmental Quality,
Department of Natural Resources
RON HOOKER, Program Administrator, Department of Agriculture
CINDY KEMPER, Hazardous Waste Program, Div. of Environmental Quality,
Department of Natural Resources
ROBERT KRAVITZ, Midwest Environmental Consultants
JIM LONG, Environmental Services Program,
Div. of Environmental Quality, Department of Natural Resources
JOHN MADRAS, Water Pollution Control Program, Div. of Environmental Quality,
Department of Natural Resources
GARY MCNUTT, Division of Environmental Health & Communicable Disease Prevention,
Department of Health
KELLEY OGLETREE, Missouri Oil Council
BOB RANDOLPH, Air Pollution Control Program, Div. of Environmental Quality,
Department of Natural Resources
CURTIS SILVEY, Third-Party Administrator, Petroleum Storage Tank Insurance Fund
TERRY TIMMONS, Public Drinking Water Program, Div. of Environmental
Quality, Department of Natural Resources
SCOTT TOTTEN, Administration, Div. of Environmental Quality, Department of
Natural Resources
KEVIN UPSCHULTE, Fuel Quality Program, Weights &Measures, Dept. of Agriculture
JOHN YOUNG, Div. of Environmental Quality, Department of Natural Resources