

Alabama Department of Environmental Management Conducts MTBE Study

By: Heather Dunn

Methyl tertiary butyl ether (MTBE) is a volatile organic chemical added to gasoline to help control air pollution by reducing the amount of ozone and carbon monoxide that is emitted into the air when fuel is burned. MTBE has been used as an oxygenate (oxygen containing compound) in gasoline since the 1970's. The use of MTBE in gasoline became more prevalent with the enactment of the Clean Air Act Amendments of 1990. This act required that a certain percentage of oxygenates be added to gasoline in areas where concentrations of ozone in the summer and carbon monoxide in the winter exceeded air-quality standards. The potential threat of contamination from MTBE in Alabama is considered to be much less than that in more populated areas and regions of colder climates, because MTBE is typically used in smaller concentrations in the more rurally populated southern regions.

At present there is limited data on the effects that MTBE may have on humans, although it has been shown to have cancerous effects on laboratory animals. The U.S. Environmental Protection Agency is continuing to evaluate the potential risks of MTBE on humans and has issued an advisory level of 20 µg/L for MTBE in water. This level is about 20,000 times smaller than what is believed to cause adverse effects on animals. This level is recommended due to the fact that at 20 µg/L, MTBE has an unpleasant taste and odor.

MTBE is very soluble in water and tends to migrate faster underground than any other chemical in gasoline due to the fact that MTBE is not easily removed by soil filtration. This makes MTBE a threat to groundwater sources located near leaking underground gasoline storage tanks, pipelines, or spills. Surface water sources are more likely to be contaminated by the use of recreational watercraft due to the fact that they may discharge up to 30% of their fuel (depending on the efficiency of the motor being used) that is unburned into the water. This would be considered a direct source of contamination, but atmospheric deposition is a possible indirect source of MTBE contamination to surface waters. When automobile fuel containing MTBE is burned, MTBE is released into the atmosphere and may later be dispersed into surface water after a rainfall.

In order to ensure that Alabama's water supply sources are safe from MTBE contamination, ADEM began conducting a study in February 2000 to test approximately 1000 groundwater wells and 80 surface water intakes in the state by the end of the year. The groundwater sources will be sampled once in the next year and the surface water sources will be sampled four times-during the periods of March through April, May through June, the week after July 4th, and the week after Labor Day. Also involved in this effort are the Tennessee Valley Authority and numerous laboratories across the state.

To date, there have been approximately 190 groundwater wells tested along with 27 surface water sources. MTBE has not been detected in any of the sources tested.