

A solution gone sour

A gasoline additive intended to reduce smog is instead showing up in drinking water, which is leading to calls to ban it at the federal level. While Congress stalls, states are doing what they can to protect their water supplies.

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It has a foul smell, tastes like turpentine and could be harmful to your health — and it is seeping into drinking water across the nation. The substance is the gasoline additive Methyl Tertiary Butyl Ether, an oxygenate that reduces auto emissions that produce smog.

While used to address air pollution, in recent years the additive itself has been polluting groundwater, a major source of drinking water in many areas of the country. While only a few years ago most policy-makers had never heard of MTBE, that has changed with public attention and media coverage, and many are scrambling to stop its contamination of the water supply.



Although the U.S. Environmental Protection Agency has called for phasing out the use of MTBE, Congress has not acted. Rather than wait, states are moving to protect their own water supplies. With Maine and California leading the charge, eight additional states are phasing out use of the additive.

A solution becomes a problem

In the late 1970s, MTBE first was used to increase octane levels in unleaded gasoline. In the 1990 Clean Air Act Amendments, Congress mandated that refiners increase the amount of oxygen content in gasoline to create a cleaner-burning fuel to reduce automobile pollution. In response, petroleum refiners in 1992 began adding oxygenates, primarily MTBE, to gasoline to produce reformulated gasoline. About 30 percent of gasoline sold in the coun-

try now is reformulated, 87 percent of which contains MTBE.

In the mid-1990s, monitoring detected MTBE contamination of groundwater from leaking underground storage tanks or pipelines, overfilled fuel tanks, spills from vehicle accidents or other sources. In 1996, California discovered that seven wells supplying half of the water for the city of Santa Monica contained MTBE at concentrations as high as 610 parts per billion (ppb), far exceeding the standard of 35 ppb then in effect. All seven wells were ordered closed. With other serious contamination discovered throughout the state, Gov. Gray Davis announced in March 1999 “[T]here is, on balance, a significant risk to California’s environment associated with the continued use of MTBE in gasoline.” Davis issued an executive order at that time, making California the first state to phase out MTBE use. It requires the removal of MTBE from gasoline sold in the state by the end of 2002.

In Maine, a spill of less than 10 gallons of gasoline from a car accident in December 1997 contaminated 24 wells. Maine, one of the few states that regulates MTBE, had a standard of 35 ppb. Testing of the well nearest the accident revealed MTBE levels of 6,500 ppb. A statewide study in 1998 in Maine revealed detectable levels of MTBE in some 16 percent of household wells and community water systems tested. The study projected that as many as 5,200 household wells may have levels above the standard.

The study prodded the 1999 Maine Legislature to pass legislation phasing out MTBE. Maine Sen. Carol Kontos, who became concerned after hearing of MTBE traces in the drinking reserve for the Portland water district, said: “You can’t make policy just on anecdotal information. That is why our

statewide testing was so important. It helped to determine the extent of the problem.”

But Maine, California and other states participating in the federal reformulated-gasoline program to curb air pollution face a particular dilemma. Gasoline containing MTBE has helped improve air quality, yet states in the federal reformulated-gasoline program have experienced the most serious MTBE contamination of water supplies. A 1999 nationwide study by the U.S. Geological Survey detected low levels of MTBE in 21 percent of groundwater tested in areas where MTBE is used in reformulated gasoline compared to 2 percent of groundwater contamination in areas using conventional gasoline.

“We had a real problem trying to find a balance between compliance with the Clean Air Act and protection of the drinking-water supplies,” Kontos of Maine said. Both Maine and California concluded that the risks of MTBE outweighed the benefits. Those states must now rely on other means to meet air quality standards.

In announcing his executive order, Davis said, “California will not backslide on air quality. Nor will we sacrifice clean air for clean water. We can and we will have both”



California Gov.
Gray Davis

States take action

Because of reports of groundwater contamination, the EPA appointed a panel of experts to study the MTBE issue. The panel reported in July 1999 that use of MTBE should be substantially reduced or phased out and Congress should eliminate the oxygenate requirement for reformulated gasoline because of MTBE’s associated environmental concerns. Environmental groups as well as the American Petroleum Institute, an industry group, supported the recommendations.

Congress has not yet acted to amend the Clean Air Act, however. The EPA recently promised to regulate MTBE under the Toxic Substances Control

Act, which could take years to do.

At least eight states, including Colorado, Connecticut, Iowa, Maryland, Missouri, Nebraska, New Hampshire and New York, passed laws in 2000 phasing out MTBE or banning the sale of reformulated gasoline containing certain amounts of the additive.



Maine Sen.
Carol A. Kontos

"We wanted to be one more voice saying we have to do something about this," said Connecticut Rep. Jessie Stratton, House chair of the Joint Environment Committee.

The Connecticut legislation phases out the use of MTBE in gasoline by October 2003. The law also requires the industry to provide education programs on the safe handling of gasoline.

Stratton said, "We wanted the public to be educated on things like properly filling lawn mowers, so we got the industry to agree to do that. That is the really interesting aspect of [this] law."

Colorado also enacted a law to phase out the use of MTBE by 2001. "We didn't know what Congress was going to do. We just couldn't wait that long," said Colorado Sen. Michael Feeley, sponsor of the legislation. Testing in Colorado determined that trace levels of MTBE exist in its groundwater. "Colorado is really a desert," Feeley said. "Groundwater is heavily used for irrigation and agricultural purposes. It is so vital. Any contamination of groundwater would be devastating."



Connecticut
Rep. Jessie
Stratton

New York Gov. George Pataki in signing a bill in May to ban the gasoline additive said he would "continue to fight for federal action to ban MTBE and identify an acceptable alternative."

Urgent need for action

MTBE's chemical characteristics make it more threatening to water supplies than other more toxic gasoline components. MTBE is highly soluble in water, causing it to travel more rapidly through soils and groundwater. MTBE does not break down easily, so it can persist in the environment for many years.

Moreover, these properties make MTBE difficult and expensive to remove from water. Without even accounting for the cost of alternate drinking-water sources, the New Hampshire Department of Environmental Services estimates the state could spend as much as \$3.6 million to clean MTBE from 3,000 wells. The city of Santa Monica has spent more than \$3 million per year to purchase water after finding MTBE contamination of its wells in 1996. The city expects the cleanup will cost more than \$160 million.

Carol Browner, U.S. EPA administrator, said in July that Santa Monica would receive \$1 million and New York would get a similar grant to clean contaminated sites on Long Island.

Time is of the essence. But, although many applaud state efforts to deal with the MTBE problem, many would like to see national action, including the petroleum industry. Juan Palomo, spokesperson for the American Petroleum Institute, said, "API does not like the idea of states doing their own thing. It will create a whole set of boutique gasoline markets. There will be so many different types of gasoline, and when there is a shortage or a problem, we can't readily use gasoline from other parts of the country." Moreover, the industry must continue to use MTBE or find an adequate substitute as long as the oxygenate requirement for re-



Colorado Sen.
Michael Feeley

More on MTBE

Reformulated gasoline or RFG is designed to reduce vehicle-exhaust emissions that are precursors to smog. Congress mandated in the Clean Air Act Amendments that RFG be sold in the 10 largest metropolitan areas with severe summertime ozone problems, including Baltimore, Chicago, Hartford, Houston, Milwaukee, New York, Philadelphia, Los Angeles, Sacramento and San Diego. Other areas can join the RFG program and 17 states and the District of Columbia were participating as of March.

MTBE is more widely used than ethanol in reformulated gasoline, largely because MTBE is derived from a product of the petroleum-refining process, and is therefore more easily blended and distributed. Corn-based ethanol, on the other hand, must be shipped separately from gasoline and added at the distribution site, which adds to the cost.

MTBE has been shown to cause cancer in laboratory animals, but there are no data regarding human health effects from drinking MTBE-contaminated water. Even so, the EPA has tentatively classified MTBE as a possible human carcinogen. MTBE is not regulated at the federal level, but in 1997 the U.S. EPA issued a drinking-water "advisory" of 20 to 40 parts per billion on the basis of taste and odor thresholds. Only a handful of states have set standards for MTBE.

formulated gasoline remains a part of federal law.

State initiatives might prompt Congress to act. But whether regulation comes at the state or federal level, many state officials believe something must be done. As Kontos of Maine said, "The one thing we *do* know is that it shouldn't be in our drinking water." ★