



# Groundwater Guardian Efforts Unite

Illinois Groundwater Guardian Community and Affiliate  
Work Hand in Hand to Combat MTBE Contamination

Groundwater Guardian Featured ROA and ROS

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**E**ast Alton Village President Fred Bright clearly remembers the phone call from Chief Water Operator and Groundwater Guardian Community Team Leader, Doug Booten about two years ago, informing him of MTBE in the community's water supply. The detection was made through a statewide ambient water quality monitoring program conducted by the Illinois EPA (IEPA), a Groundwater Guardian Affiliate since 1997. The program samples and tests water for more than just the water quality standards required by the federal government.

Bright quickly learned that MTBE stood for methyl-tertiary-butyl-ether, a gasoline additive which had no state or national standards, but smelled like turpentine and was a suspected carcinogen. "Although we had not gotten any complaints from customers," Bright said, "we were very concerned, so we quickly went to work with IEPA and hired a consultant to tell us the extent of the pollution, how it could be cleaned up, and how much it would cost."

Booten stated, "Being a groundwater supply, we thought we were pretty well protected and had not seen any detection of volatile organics in our well water. The MTBE opened our eyes as to how easily a water supply can get contaminated." He worked closely with the consultant and IEPA to get pumping information and access to land to install monitoring wells. Eventually, after several months of investigative work, the MTBE plume was traced back to leaking underground storage

tanks at two long-abandoned service stations, within a half mile of the affected wells. IEPA listed these sites as the highest priority for its Leaking Underground Storage Tank Cleanup Program and were quickly addressed. The remaining fuel in the tanks, the tanks, and the vast quantities of contaminated soil were removed. The highest levels of MTBE were in the northernmost wells, especially Well 9, and Booten managed the pumping rates of all the wells to minimize MTBE in the community's water. IEPA's weekly monitoring provided quick feedback to Booten on his approach.

The consultant proposed several water supply options, including a new well field with a price tag of \$2.7 million, a pump-and-treat system with air stripping for a \$650,000 initial investment and \$200,000 annual cost, an activated carbon system for a \$1 million investment and \$300,000 annual cost, plant and well field abandonment and purchase of treated water with at least a \$1.5 million investment and unknown costs for treated water.

After considering these options and their costs, Booten and the consultant proposed isolating the plume and using the standby water treatment plant built in 1969, which had been mothballed in 1992 when a new water plant was completed. No one was certain the plan would work, but everyone was willing to try. Groundwater modeling was conducted by IEPA to study the various pumping rates of several wells and aimed to intersect the capture zone of Well 9 with the known location of the MTBE plume and the former service stations.

On June 26, 2000, the proposed remediation system was put to a test, with continued weekly monitoring, and it has been operating ever since. Well 9 is pumped at a moderate rate, the water is treated in the old treatment plant, and discharged into the Mississippi River under a court-approved permit. The highest level seen in the raw water from Well 9 was 580 parts per billion (ppb) and it dropped to 50-60 ppb since then. Water production was switched to wells with very little or no MTBE, so the finished water does not exceed 2 ppb. Village residents have been informed of progress with the problem through the press, the village's quarterly newsletter and the annual water report.

Due to this problem and 25 other MTBE detections in Illinois public water systems, IEPA proposed a groundwater standard of 70 ppb of MTBE and a preventive response level of 20 ppb. Five other states now have groundwater standards for MTBE.

Bright credits Booten and Leo Nolte of the Water Department for saving the well field and minimizing the cost to the village. He said, "The cost to the village is in six figures now, but through their hard work we were successful in protecting the rest of our well field, keeping our water safe to drink, and starting the cleanup of contamination. We expect the litigation to recover our costs will take some time, so we were happy the costs were contained, like the MTBE." Bright also credited the IEPA with technical help and monitoring assistance: "The information they provided was instrumental in cleaning up

the gas stations, designing the pump and treat system, getting permits, and proceeding with litigation."

Bright stated he had learned three important lessons from the MTBE problem, which may be useful for other municipal officials: "Pay special attention to underground tanks in your village or city; remember that water monitoring can alert you to problems you cannot see; and trust and have faith in your employees to solve problems."

East Alton is now working on groundwater protection measures such as maximum setback zones and contingency planning to protect their water supply from future problems.

The Village of East Alton has also been awarded the Illinois Shining Star Groundwater Protection Award for its innovative, science based solution to this groundwater contamination problem and for protecting its well field.

For more information about:

- the groundwater remediation and protection work being done in East Alton, contact Doug Booten at 618-259-4646 or [eawtp@home.com](mailto:eawtp@home.com)
- the Groundwater Guardian Affiliate work being done by IEPA, contact Anthony Dulka at 217-785-4787 or [epa3183@epa.state.il.us](mailto:epa3183@epa.state.il.us).
- the Illinois Shining Star Groundwater Protection Awards, contact Harry Hendrickson at the Illinois Department of Natural Resources at 217-785-8577 or [hhendrickson@dnrmail.state.il.us](mailto:hhendrickson@dnrmail.state.il.us).