Site Navigation

- Cleanups, Remediation
- Emergency Response
- Licensing
- Permits, Registrations
- Preventing Pollution
- Recycling
- Reporting
- Rules

- Data
- Forms
- Maps
- Public Notices
- Publications
- Records
- Webcasts

- About Us
- Contact Us

How 's our Customer Service? Please fill out our Customer Satisfaction Survey

Pioneering a New Approach

A pilot project to monitor water quality in watersheds near Waco gets some fine-tuning in its first year.

Remote monitoring on the Bosque-Leon rivers shows promise

One year into a pilot project in North Central Texas, the TCEQ is expanding its knowledge about the rapid detection of water contamination.

The project is in a rural area northwest of Waco that is dense with dairy operations. The North Bosque and Leon watersheds each have two monitors capable of gathering faster, better data on the constituents that affect water quality.

The North Bosque River empties into Lake Waco, which is a source of drinking water for the city of Waco, and the Leon River empties into Lake Belton, which is a drinking water source for Temple, Belton, and Killeen.

One of the primary problems stems from a concentration of commercial dairies—170 such facilities with a combined 100,000 dairy cows operate in the adjoining watersheds. When manure from these operations is allowed to enter the rivers, the result is high concentrations of in-stream phosphorus. This can lead to excessive growth of algae and other aquatic plants, which affects the quality of drinking water.

To improve the tracking of contaminants, the TCEQ introduced cutting-edge technology in 2004 and launched the Environmental Monitoring and Response System (EMRS).

The four monitoring sites in the Bosque-Leon EMRS project take automated readings every 15 minutes for water flow and precipitation, and every hour for dissolved oxygen, pH, conductivity, temperature, and turbidity. Measurements of nutrients are recorded every six hours.

When notified of potential contamination by an EMRS trigger alert—delivered by e-mail or digital page—monitoring site operators will check the instrumentation for possible malfunctions and evaluate the data against natural conditions, such as seasonal changes. Abnormal readings determined to be valid may be investigated at the site and upstream by the TCEQ Stephenville office.

During rainy conditions, TCEQ investigators also monitor the dairies. If discharge is documented, enforcement actions may follow.

From October 2004 to September 2005, the EMRS monitors issued 135 trigger alerts. Some triggers were traced to trouble with instrumentation or buildup on the sensors. Preventive maintenance has helped overcome those problems.

To focus more closely on the source of water quality problems, the TCEQ will deploy four additional EMRS sites in parts of the Bosque watershed most likely to be contributing to the alerts.

While the EMRS technology and its applications are still in development, the Bosque-Leon monitoring project is drawing interest. EPA officials say they consider the pilot project to be one of the most innovative seen thus far.

Back to the top

Print this