Improving Water Quality in E.V. Spence Reservoir

Two TMDLs for Dissolved Solids and Sulfate

The state of Texas requires the water quality in E.V. Spence Reservoir (Segment 1411) to be suitable for swimming, wading, fishing, drinking (with treatment), and aquatic life. However, water quality testing has found that excessive levels of sulfate and total dissolved solids (salinity) are affecting the lake and its use as a source of drinking water.

In response to these conditions, the TCEQ developed a Total Maximum Daily Load (TMDL) project. The TCEQ worked with stakeholders to determine the measures necessary to restore water quality in the reservoir. The project focused primarily on the area between E.V. Spence Reservoir and Lake J.B. Thomas.

The goal of a TMDL is to determine the amount (or load) of a pollutant that a body of water can receive and still support its beneficial uses. The allowable load is then allocated among categories of sources within the watershed, and stakeholders work with the state to develop measures that reduce pollutant loads.

Learn more about water quality standards, monitoring, and TMDLs by reading *Preserving and Improving Water Quality*, available on our website at <www.tceq.texas.gov/goto/tmdl/>.

E.V. Spence Reservoir Watershed

E.V. Spence Reservoir is a 15,893-acre reservoir located in the upper Colorado River Basin, approximately two miles west of Robert Lee. The reservoir was completed in June 1969, and is managed by the Colorado River Municipal Water District. The watershed has an area of 15, 278 miles and is characterized by mesquite-covered rolling plains in the lower portion of the basin and high plains grasslands in the upper portion. Inflow into the reservoir is partially controlled by Lake J.B. Thomas, Lake Colorado City, and Champion Creek Reservoir.

E.V. Spence Reservoir is an important water supply for the surrounding region. Under normal rainfall conditions, it provides a portion of the water for the 30,000 residents of the cities of Big Spring, Coahoma, Midland, Odessa, Robert Lee, San Angelo, and Stanton. The lake is also known for its striped bass, luring large numbers of fishermen each year. The Colorado River Municipal Water District is permitted to draw 50,000 acre-feet of water from the reservoir each year for municipal, mining, and industrial uses.

Public Participation

In all its projects, the TCEQ seeks to gather opinion and information from people who represent government, permitted facilities, agriculture, business, environmental, and community and private interests in the watershed.

A steering committee was formed in April 1999 to solicit advice, comments, and ideas from interested parties. Membership included a diverse cross-section of stakeholders in the upper Colorado River Basin, including representatives from industry, agriculture, petroleum operations, environmental groups, private citizens, and government agencies.

Status

The Texas State Soil and Water Conservation Board completed a large project to eliminate salt cedar from the watershed. They used both chemical and biological treatment methods to reduce salt cedar from 11,391 acres in the area below Lake J.B. Thomas and south to the E.V. Spence Reservoir.

The Colorado River Municipal Water District (CRMWD) has been managing diversions of fresh water from the Colorado River into the reservoir. Prior to the drought of 2010–2011, the levels of saline contaminants were dropping in E.V. Spence Reservoir and the

watershed of the Colorado below it. However, water levels in the reservoir have dropped drastically. This, in turn, has led to concentration of chloride, sulfate, and TDS. The CRMWD has also experimented with weather modification methods to increase rainfall.

The Railroad Commission of Texas identified and plugged abandoned and orphaned oil wells to eliminate that source of pollution. As CRMWD finds new wells, they notify the Railroad Commission and work to plug them. The RRC also completed a study to evaluate other management practices that would reduce or prevent saline pollution in the streams that flow into the reservoir.

For More Information

Contact one of the people listed, or visit the project website at:

<www.tceq.texas.gov/waterquality/tmdl/04-spence.html>

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TMDL Status

Start: May 1998
TCEQ Adopted: November 17, 2000
EPA Region 6 Approved: May 9, 2003

I-Plan Status

TCEQ Approved: July 13, 2001

TMDL Highlights

- In August 1999, the TCEQ and the Railroad Commission of Texas (RRC) announced a collaborative partnership to fund plugging of abandoned oil and gas wells in the E.V. Spence Reservoir watershed. Leaking abandoned wells have been identified as a source of salinity in the reservoir. Together, the agencies committed $2.6 million to plug approximately 171 abandoned wells in the watershed through 2002.
- The TCEQ solicited public comment on the draft TMDLs for a 30-day period ending October 15, 2000. A public hearing was held to receive comment in October in Midland, Texas.
- In November 2000, the commission adopted the TMDLs as an update to the Texas Water Quality Management Plan.
- The EPA approved the TMDLs on May 9, 2003.
- The final report is available on the Web at <www.tceq.texas.gov/waterquality/tmdl/04-spence.html>.

I-Plan Highlights

- The TCEQ held a public meeting on July 19, 2001, in Midland to receive comments on the draft implementation plan. Written comments were solicited for a 30-day period ending June 25, 2001.
- The Implementation Plan for Sulfate and Total Dissolved Solids in the E.V. Spence Reservoir was approved by the TCEQ on August 10, 2001.
- The I-Plan provides a description of the control actions and management measures that will be implemented to achieve the water quality target. The plan includes a schedule for activities and a follow-up monitoring plan to verify the effectiveness of the pollutant reduction strategies.
- The final plan is available on the Web at <www.tceq.texas.gov/waterquality/tmdl/04-spence.html>.