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Integrated management strategy for the development and implementation of an atrazine TMDL for Aquilla Lake.

Aquilla Reservoir was assessed as not supporting its designated use when samples of finished drinking water violated the Maximum Contaminant Level (MCL) for atrazine. The MCL requires a running annual average of 0.003 mg/L or lower. The annual running average for the second quarter of 1997 through the first quarter of 1998 was 0.004 mg/L. This led to the listing of Aquilla Reservoir on the 1998 Texas 303(d) list and the subsequent development of a Total Maximum Daily Load (TMDL) for atrazine in the Aquilla Reservoir watershed. After the development of the TMDL, an implementation plan was prepared. Working with area farmers, state and federal agency personnel combined expertise and resources in order to more effectively deal with the atrazine issue. A major component of the implementation plan was the placement of best management practices (BMPs) designed to reduce off-target losses of atrazine in surface runoff. These BMPs included preplant incorporation of atrazine, use of grass filter strips, vegetated waterways, sediment control structures, and others. Cost-share programs of the USDA-Natural Resources Conservation Service (NRCS) and the Texas State Soil and Water Conservation Board (TSSWCB) helped fund installation of BMPs in the watershed. Texas Cooperative Extension (TCE) led the way in producer education on BMP effectiveness to enhance adoption by farmers. TCE and the Texas Agricultural Experiment Station (TAES) established and maintained a network of automatic and passive samplers in several locations of the watershed to collect runoff water generated by storm events. TCE and TAES also collected routine stream water samples and lake and stream sediment samples for analysis. The TAES pesticide fate research lab analyzed all samples for atrazine concentrations. This monitoring effort along with reservoir sampling by the Texas Commission of Environmental Quality (TCEQ) has been used to validate the effectiveness of BMP and educational efforts in reducing atrazine concentrations. Through this team effort, ambient atrazine concentrations have been reduced by over 60% compared to 1997 – 98 levels and current running annual average concentrations for atrazine in finished drinking water are well below the MCL. Based on these reductions, the TCEQ and TSSWCB have recommended the removal of Aquilla Reservoir from the 2004 Texas 303(d) list for atrazine.

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