

LOWER ARKANSAS RIVER BASIN TOTAL MAXIMUM DAILY LOAD

Water Body: Arkansas River below Wichita
Water Quality Impairment: Chlordane

1. INTRODUCTION AND PROBLEM IDENTIFICATION

Subbasin: Middle Arkansas–Slate

Counties: Sumner, Sedgwick, & Cowley

HUC 8: 11030013

HUC 11 (HUC 14s): **010** (060)
 030 (010, 030, and 040)

Drainage Area: 169.7 square miles

Main Stem Segments: 3, 9, 18; starting at the confluence with Ninnescah River and ending at the confluence with the Little Arkansas River; Headwaters in Sedgwick County.

Designated Uses: Special Aquatic Life Support; Primary Contact Recreation; Secondary Contact Recreation; Domestic Water Supply; Food Procurement; Ground Water Recharge; Industrial Water Supply Use; Irrigation Use; Livestock Watering Use for Main Stem Segments

1998 303d Listing: Table 1 - Predominant Nonpoint Source and Point Source Impacts

Impaired Use: Food Procurement on Main Stem Segments

Water Quality Standard: 0.00048 ug/l (KAR 28-16-28e(c)(4)(A))

Surrogate used for Food Procurement WQS of 0.02 mg/kg (Fish Consumption Advisory Level) - Substances that can bioaccumulate in the tissues of edible aquatic or semiaquatic life or wildlife through bioconcentration or biomagnification shall be limited in surface waters to concentrations that result in no harm to human consumers of these tissues. (KAR 28-16-28e(c)(4)(B))

2. CURRENT WATER QUALITY CONDITION AND DESIRED ENDPOINT

Level of Support for Designated Use under 1998 303d: Not Supporting

Monitoring Sites: Arkansas River at Derby, at Washington Street bridge

Period of Record Used: Derby: 1990 to 1998

Current Condition: The fish tissue monitoring and survey program was implemented to analyze fish tissue samples for chlordane in order to define water body segments impacted by contamination and provide long term monitoring on segments with past or present fish consumption advisories. Bottom feeding fishes such as carp are sampled because of their feeding or dwelling preferences near the stream bed sediments where chlordane remains in the sediments. Fish tissue samples were collected in 1990-1998.

The plot of samples from Derby indicates no change in concentrations. The average concentration of chlordane in fish tissue was 0.032 mg/kg at Derby.

Desired Endpoints of Water Quality on Arkansas River over 2005 - 2010:

Fish tissue concentrations will gradually decline as chlordane is purged or degraded in the stream sediments during high flows. Given the suspended status of chlordane use nationwide, the endpoint delineating sufficient water quality to fully support the designated use will be average fish tissue concentrations below 0.02 mg/kg, leading to removal of fish consumption advisories. There is no seasonal variation associated with this TMDL.

3. SOURCE INVENTORY AND ASSESSMENT

The original source of chlordane has been runoff, particularly from urban areas where widespread termite eradication occurred around homes in the 1970's- 1980's. Chlordane is very persistent in the environment, yet very insoluble in water. Samples taken from water rarely contain chlordane. The chlordane is attached to sediments which allow for transportation into streams and accumulation in the bed sediments. Chlordane was banned (all uses) in 1988. No additional loading should occur.

4. ALLOCATION OF POLLUTION REDUCTION RESPONSIBILITY

Point Sources: A current Wasteload Allocation of zero is established by this TMDL because the product is banned and there will be no discharge of chlordane into the stream via wastewater treatment plants.

Non-Point Sources: With the banning of the product, there will be no application of chlordane anywhere it might be discharged under runoff conditions and enter the stream. Therefore, the Load Allocation will be set at zero under this TMDL.

Margin of Safety: In order to ensure there is no threat of chlordane levels impairing the food procurement use of the river, fish advisories will remain in place until all samples taken from fish tissue have concentrations below 0.02 mg/kg for three consecutive years.

State Water Plan Implementation Priority: Because no additional loading is expected this TMDL will be a Low Priority for implementation.

Unified Watershed Assessment Priority Ranking: This watershed lies within the Middle Arkansas–Slate Subbasin (HUC 8: 11030013) with a priority ranking of 6 (Highest Priority for restoration work).

Priority HUC 11s and Stream Segments: Pending additional monitoring and assessment, no priority subwatersheds or stream segments should be identified

5. IMPLEMENTATION

Desired Implementation Activities

1. Maintain fish consumption advisories.

Implementation Programs Guidance

KDHE will continue to assess trends of fish tissue samples through 2005.

Time Frame for Implementation: Continued monitoring over the years from 2000 to 2005.

Targeted Participants: None.

Milestone for 2005: The year 2005 marks the midpoint of the ten-year implementation window for the watershed. At that point in time, additional monitoring data from fish tissue samples will be reexamined to confirm the impaired status of the river.

Delivery Agents: None.

Reasonable Assurances

Authorities: The following authorities may be used to direct activities in the watershed to reduce pollution.

1. K.S.A. 65-164 and 165 empowers the Secretary of KDHE to regulate the discharge of sewage into the waters of the state.

2. K.S.A. 65-171d empowers the Secretary of KDHE to prevent water pollution and to protect the beneficial uses of the waters of the state through required treatment of sewage and established water quality standards and to require permits by persons having a potential to discharge pollutants into the waters of the state.

3. K.S.A. 2-2439 empowers the Secretary of Agriculture to oversee pesticide management, registration and use in the state.

Funding: The State Water Plan Fund annually generates \$16-18 million and is the primary funding mechanism for implementing water quality protection and pollution reduction activities in the state through the Kansas Water Plan. The state water planning process, overseen by the Kansas Water Office, coordinates and directs programs and funding toward watersheds and water resources of highest priority. Typically, the state allocates at least 50% of the fund to programs supporting water quality protection. This TMDL is a Low Priority consideration and should not receive funding.

Effectiveness: The substance banned from use; continued flushing flows down river will purge chlordane from bed sediments.

6. MONITORING

KDHE will continue to collect fish tissue samples in Arkansas River. Three consecutive years of sampling should occur between 2000-2005. Based on that sampling, the status of 303d listing will be evaluated in 2006.

7. FEEDBACK

Public Meetings: Public meetings to discuss TMDLs in the Lower Arkansas Basin were held March 9 in Wichita, April 26 in Wichita and Hutchinson, and April 27 in Arkansas City and Medicine Lodge. An active Internet Web site was established at <http://www.kdhe.state.ks.us/tmdl/> to convey information to the public on the general establishment of TMDLs and specific TMDLs for the Lower Arkansas Basin.

Public Hearing: A Public Hearing on the TMDLs of the Lower Arkansas Basin was held in Wichita on June 1, 2000.

Basin Advisory Committee: The Lower Arkansas Basin Advisory Committee met to discuss the TMDLs in the basin on September 27, November 8, 1999; January 13, 2000; March 9, 2000.

Discussion with Interest Groups: Meetings to discuss TMDLs with interest groups include:

Agriculture: January 12, February 2 and 29, 2000

Environmental: March 9, 2000

Conservation Districts: November 22, 1999

Industry: December 15, 1999, January 13, February 9 and 22, 2000

Local Environmental Protection Groups: September 30, November 2, December 16, 1999

Milestone Evaluation: In 2006, evaluation will be made as to the degree of impairment which has occurred within the drainage and current condition of Arkansas River. Subsequent decisions will be made regarding implementation approach, follow up of additional implementation and implementation in the nonpriority subwatersheds.

Consideration for 303d Delisting: Arkansas River will be evaluated for delisting under Section 303d, based on the monitoring data over the period 2000-2005. Therefore, the decision for delisting will come about in the preparation of the 2006 303d list. Should modifications be made to the applicable criterion during the ten-year implementation period, consideration for delisting, desired endpoints of this TMDL and implementation activities may be adjusted accordingly.

Incorporation into Continuing Planning Process, Water Quality Management Plan and the Kansas Water Planning Process: Under the current version of the Continuing Planning Process, the next anticipated revision will come in 2002 which will emphasize revision of the Water Quality Management Plan. At that time, incorporation of this TMDL will be made into both documents. Recommendations of this TMDL will be considered in Kansas Water Plan implementation decisions under the State Water Planning Process after Fiscal Year 2005.

Approved July 27, 2001.