

# KANSAS-LOWER REPUBLICAN BASIN TOTAL MAXIMUM DAILY LOAD

**Waterbody: Kill Creek Watershed**  
**Water Quality Impairment: Chlordane**

## 1. INTRODUCTION AND PROBLEM IDENTIFICATION

**Subbasin:** Lower Kansas

**County:** Johnson

**HUC 8:** 10270104

**HUC 11:** 150 (entire watershed)

**Drainage Area:** Approximately 60 square miles.

**Main Stem Segments:** 37, starting at confluence of Kansas River, headwaters near Gardner

**Tributary Segments:** None

**Designated Uses:** Kill Creek, Segment 37, supports Secondary Contact Recreation and all other designated uses.

**1998 303d Listing:** Table 1–Predominant Point and Non-point Source Impacts

**Impaired Use:** Food Procurement.

**Water Quality Standard:** 0.00048  $\mu\text{g/l}$  (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

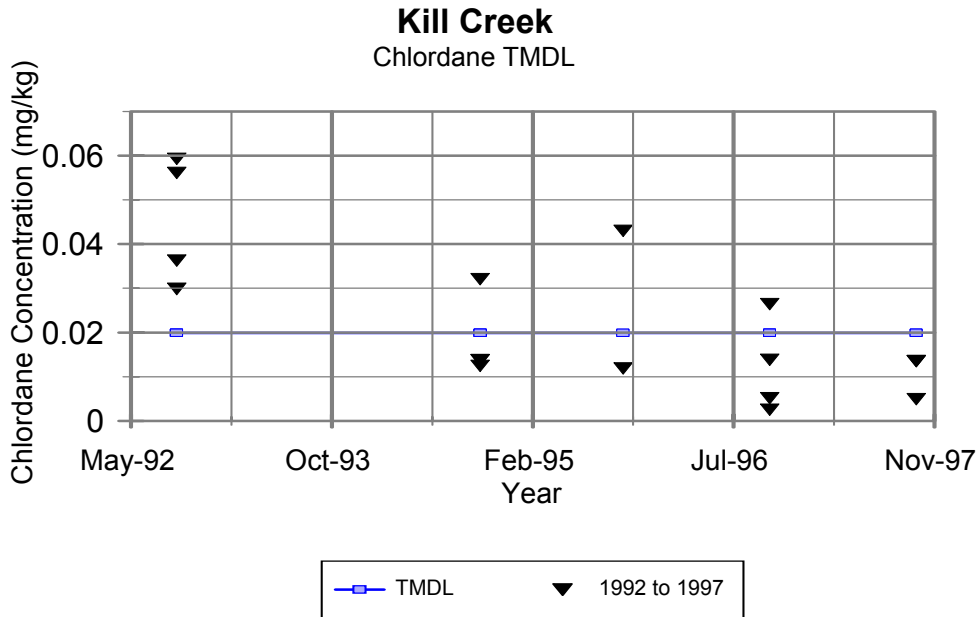
**Level of Support for Designated Use under 1998 303d:** Not Supporting Food Procurement

**Monitoring Sites:** Fish Tissue samples collected below Sunflower AA Plant

**Period of Record Used:** 1992--1997

**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 fish 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 collected 1992-1997. Plot of samples indicates declining trend in Kill Creek watershed.



**Desired Endpoints of Water Quality on Kill Creek over 2004 - 2008:**

Fish tissue concentrations are declining as chlordane is purged or degraded in the stream sediments during high flows. Given this trend and 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 allows 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:** As the product is banned, there will be no discharge of chlordane into stream via wastewater treatment plants. There will be no Wasteload Allocation established under this TMDL.

**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, there will be no Load Allocation established 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 Lower Kansas River (HUC 8: 10270104) with a priority ranking of 1 (High 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 2004.

**Timeframe for Implementation:** Continued monitoring over the years 2000-2004.

**Targeted Participants:** None.

**Milestone for 2004:** The year 2004 marks the mid-point of the ten year implementation window for the watershed. At that point in time, additional monitoring data from fish tissue samples will be re-examined 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:** 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 river. Three consecutive years of sampling should occur between 1998-2003. Based on that sampling, the status of 303d listing will be evaluated in 2004.

## **7. FEEDBACK**

**Public Meetings:** Public meetings to discuss TMDLs in the KLR Basin were held March 10, 1999 in Topeka, April 27 in Lawrence and April 29 in Manhattan. 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 Kansas-Lower Republican Basin.

**Public Hearing:** A Public Hearing on the TMDLs of the Kansas-Lower Republican Basin was held in Topeka on June 3, 1999.

**Basin Advisory Committee:** The Kansas-Lower Republican Basin Advisory Committee met to discuss the TMDLs in the basin on December 3, 1998; January 14, 1999; February 18, 1999; March 10, 1999; May 20, 1999 and June 3, 1999.

**Discussion with Interest Groups:** Meetings to discuss TMDLs with interest groups include:  
Agriculture: November 10, 1998; December 18, 1998; February 10, 1999; April 10, 1999, May 4, 1999, June 8, 1999 and June 18, 1999.  
Municipal: November 12, 1998, January 25, 1999; March 1, 1999; May 10, 1999 and June 16, 1999.  
Environmental: November 3, 1998; December 16, 1998; February 13, 1999; March 15, 1999, April 7, 1999 and May 3, 1999.  
Conservation Districts: March 16-18, 24-25, 1999.

**Milestone Evaluation:** In 2004, evaluation will be made as to the degree of impairment remaining on Kill Creek.

**Consideration for 303d Delisting:** The river will be evaluated for delisting under Section 303d, based on the monitoring data over the period 1999-2003. Therefore, the decision for delisting will come about in the preparation of the 2004 303d list. Should the river continue to be listed as impaired in 2004, the next evaluation for delisting will occur with the preparation of the 2008 Section 303d list. Should modifications be made to the applicable water quality criteria during the ten year implementation period, consideration for delisting, development of desired endpoints of this TMDL and implementation activities will 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 2004.

Approved January 26, 2000.