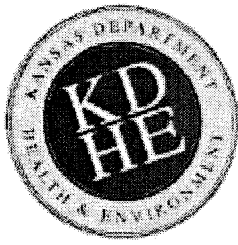


# **Attachment B**



## Bureau of Water

■ 2002 Triennial Review ■  
 ■ Proposed Lagoon Liner Regulations ■

- [Links to Water Supply Security Issues](#)

[Bureau of Water.](#)

[Geology.](#)

[Industrial Programs.](#)

[Livestock  
Management.](#)

[Municipal Programs.](#)

[Public Water Supply.](#)

[Technical Services.](#)

[Watershed  
Management.](#)

[Watershed Planning  
and TMDL Program.](#)

### Available On This Page:

- [Purpose of the Bureau of Water](#)
- [Adopted Water Quality Standards](#)
- [Bureau of Water Quality Assurance Management Plan](#)
- [State Water Quality Regulations](#)
- [Water Quality Information Resources](#)
- [Links to Other Sites](#)

### BOW Program and Section Home Pages:

- [Underground Injection Control](#)
- [Underground Hydrocarbon and Natural Gas Storage](#)
- [Water Wells](#)
- [Kansas Unified Watershed Assessment](#)
- [Local Environmental Protection Program](#)
- [Stormwater Program](#)

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### Purpose of the Bureau of Water

The Bureau of Water administers programs related to public water supplies, wastewater treatment systems, the disposal of sewage, and nonpoint sources of pollution. Programs are designed to provide safe drinking water, prevent water pollution, and assure compliance with state and federal laws and regulations such as the Clean Water Act and Safe Drinking Water Act.

### Adopted Water Quality Standards

- [K.A.R. 28-16-28b through f \(12-9-02\)](#)
- [The Kansas Anti-degradation Policy \(8-16-01\)](#)
- [Implementation procedures for the Surface Water Quality Standards \(12-9-02\)](#)
- [Implementation procedures for NPDES permitting \(8-16-01\)](#)

### State Water Quality Regulations

**Note:** The files linked below require the [Adobe Acrobat Reader®](#) plug-in. For assistance with download, installation, or use of the plug-in, please contact [Adobe Systems, Inc.®](#) If you

experience a problem with one of our files which you have successfully downloaded, please contact [webmaster@kdhe.state.ks.us](mailto:webmaster@kdhe.state.ks.us) for assistance. For technical support, contact [Adobe Systems, Inc.](#)

The following regulations represent an electronic facsimile of Kansas Administrative Regulations, promulgated by the Kansas Department of Health and Environment and published by the Kansas Secretary of State. These rules are taken from electronic copies of the printed state regulations which serve as the agency's official rules and regulations. The printed regulations represent the final word in matters of interpretation.

The KDHE Office of Public Information has appended copies of the *Kansas State Register* publication of new or amended, permanent KDHE regulations to the appropriate chapter. Those amendments are noted on the cover sheet for each chapter. In the interest of saving space, some chapters have been grouped together.

- [28-5. Sewage and Excreta Disposal.](#)
- [28-10. Sanitary Conditions Around Reservoirs.](#)
  - [A. Sanitation Zone Boundaries.](#)
  - [B. General.](#)
  - [C. Standards.](#)
- [28-13. Underground Storage, Disposal Wells, And Surface Ponds.](#)
- [28-14. Collection and Analysis of Water and Public Water Supplies.](#)
- [28-15. Application for Permits; Domestic Water Supply.](#)
- [28-16. Surface Water Quality Standards](#)
  - **Changes to 28-16**
  - [28-16-28. Surface Water Quality Criteria \(12-9-02\)](#)
  - [28-16-30 through 28-16-36. Operator Certification\(Aug 16, 2001\)](#)
  - [28-16-58. Definitions\(Aug 16, 2001\)](#)
  - [28-16-60. Development of Draft Permit\(May 3, 2001\)](#)
- [28-18. Agricultural and Related Wastes Control.](#)
- [28-30. Water Well Contractor's License; Water Well Construction And Abandonment.](#)
- [28-41. Oil Field Waste Disposal.](#)
- [28-43. Construction, Operation, Monitoring and Abandonment of Salt Solution Mining Wells.](#)
- [28-45. Hydrocarbon Storage Wells and Well Systems.](#)
- [28-46. Underground Injection Control Regulations.](#)
- [28-47. Use of Oil and Gas Field Salt Water in Road Construction and Maintenance Projects.](#)
- [28-66. Local Environmental Protection Grant Program.](#)

State Water Quality Statutes may be viewed at the [Kansas Legislative Web site.](#)

## Water Quality Information Resources

This list of resources includes documents produced by the **Bureau of Water** and the [Bureau of Environmental Field Services](#). For additional Kansas water quality resources, visit the Section Home Pages listed at the side of this page.

### Background Materials:

- [The Clean Water Act in Kansas: 25 Years Later \(.pdf\)](#)

### Surface Water Quality:

- [Kansas Surface Water Register - Nov. 2002\(.pdf\)](#)
- [Kansas Water Quality Limited Segments - 1998 303\(d\) List](#)
- [2002 303\(d\) Listing Methodology](#)

- [USGS Stream Statistics, Kansas Median Flow Values](#)

### **Water/Wastewater Treatment:**

- Water/Wastewater Operator Training Information and various wastewater treatment discharge permit applications can be found on the [Technical Services](#) home page.

## **Links to Other Sites**

### **Groundwater Management District (GMD) Websites:**

- [Southcentral Kansas GMD 2 - Equus Beds Information Resource Website](#)
- [Southwest Kansas GMD 3](#)

### **Local Water Program Websites:**

- [Dickinson County Water Improvement Program](#)
- [Johnson County Wastewater](#)

### **State Websites:**

- [Kansas Water Office](#)
- [Kansas Dept. of Agriculture -- Division of Water Resources](#)
- [Kansas Geological Survey -- Water Resources Index Page](#)
- [State Conservation Commission](#)

### **Federal Websites:**

- [U.S. EPA Office of Water](#)
- [U.S. EPA Region 7 \(Iowa, Kansas, Missouri, Nebraska\)](#)
- [U.S. EPA National Home Page](#)



[Click Here for Kansas Don't Spoil It](#)

**Kansas Department of Health and Environment  
Bureau of Water**

**Proposed Municipal, Commercial, and Industrial Wastewater Lagoon Liner Regulations**

**Proposed KDHE Regulations**

In February 2003, the Secretary of the Kansas Department of Health and Environment (KDHE), Roderick Bremby, announced it was his goal to move forward with development of groundwater-protection practices for the Equus Beds region as well as other sensitive groundwater areas of the state. Secretary Bremby noted many valid concerns have been raised about the need for additional requirements to contain, treat and dispose of wastewater generated by municipal, commercial, industrial, and livestock facilities in Kansas. To address these concerns, Secretary Bremby has initiated a process within KDHE to develop and finalize draft regulations that would establish requirements to cover sources of wastewater from all of these sectors. Secretary Bremby noted the regulations will be scientifically and technically sound, utilizing information and approaches shown to be effective. Because the Equus Beds Aquifer serves as a source of water for many residences, businesses and farms, and serves a large portion of the state's population, particular emphasis will be directed at protecting this aquifer. Secretary Bremby will initiate this process by convening meetings in March 2003 with local leaders and interest groups from the Equus Beds area to continue the collaborative process for the collection of ideas and to initiate this same process for other areas of the state. Following the meetings, KDHE will develop and finalize drafts of regulations for municipal, commercial, industrial wastewater systems with a separate regulation package addressing livestock waste management systems, and initiate the formal regulation adoption process.

One part of implementing the Secretary's goal will be the development and adoption of a series of new regulations specifically targeting municipal, commercial, and industrial wastewater lagoon liner requirements. The proposed regulations will attempt to:

1. Provide for enhanced groundwater protection by addressing the design, construction and operation of wastewater lagoons which serve municipal, commercial, and industrial facilities.
2. In the case of industrial wastewater lagoon systems, the regulations will convert Policy Memorandum #90-2 (September, 1990) titled, "Industrial Wastewater Pond Liner Policy" into regulation and will make the requirements an enforceable part of KDHE's Minimum Standards of Design for Water Pollution Control Facilities, 1978.
3. The proposed regulations will update the Minimum Standards of Design for Water Pollution Control Facilities employed in the design of wastewater treatment systems serving municipal, commercial, and industrial facilities. Specifically, the updates will reflect the research findings in the Kansas State University (KSU) Study regarding the effectiveness of earthen lagoons for the containment and treatment of livestock waste. While the KSU Study specifically targets livestock waste, many of the study findings are directly applicable to municipal, commercial, and industrial wastes as well.

4. The proposed regulations will provide uniformity in regard to KDHE's approach in the design, construction, and use of wastewater lagoon systems serving municipal, commercial, and industrial facilities. While there are significant differences in the various wastes generated by these facilities, there are areas of common concern to which KDHE desires to provide a uniform approach in addressing.

As a part of KDHE's regulation development and adoption process, KDHE seeks input from the regulated community, public, organizations, groups, consulting firms, and other state or federal agencies as to specific concepts and issues they believe need to be addressed in the regulations which KDHE ultimately promulgates. To that end, KDHE is scheduling a number of meetings to solicit input and comments on concepts and issues which KDHE should evaluate and consider. A schedule of the public meetings that will be held around the state can be found in the Notice of Public Meetings below. To help generate concepts and issues for consideration and to help focus attention to key areas of concern, KDHE has prepared materials for use at the public meetings in a Coral Presentation format to help generate ideas, concepts, and concerns which the public can share with KDHE and the other participants at these meetings.

## Public Meetings

### Kansas Department of Health and Environment Bureau of Water Notice of Public Meetings

The Kansas Department of Health and Environment (KDHE) will conduct public meetings to solicit concepts, issues, and concerns KDHE should evaluate during the formulation of regulations KDHE is proposing to develop and adopt addressing Municipal, Commercial, and Industrial Wastewater Lagoon Liner Requirements. The public meetings will be at the following dates, times, and locations:

<u>Date</u>	<u>Time</u>	<u>Location</u>
April 16, 2003	7:00 p.m.-10:00 p.m.	Kansas History Center Museum Education Classroom 6425 SW 6 <sup>th</sup> Ave. Topeka, KS
April 22, 2003	7:00 p.m.-10:00 p.m.	Ft. Hays State University Memorial Union - Black & Gold Room 600 Park Street Hays, KS
April 23, 2003	7:00 p.m.-10:00 p.m.	Sedgwick Co. Education Extension Center 4-H Hall A 7001 W. 21 <sup>st</sup> Street North Wichita, KS

## Background

In accordance with Secretary Roderick Bremby's goal to develop and promulgate groundwater-protection practices for sensitive groundwater areas in the state and specifically to address the Equus Beds Aquifer, KDHE is proposing to develop and promulgate regulations addressing municipal, commercial, and industrial wastewater lagoon liner requirements. These regulations are intended to enhance the protection of groundwater resources in the state by addressing the design, construction and operation of wastewater lagoons which serve municipal, commercial, and industrial facilities; convert current policies regarding industrial wastewater pond liners into regulations which will make them an enforceable part of the Minimum Standards of Design for Water Pollution Control Facilities-1978; update provisions of the Minimum Standards of Design for Water Pollution Control Facilities to reflect current technology and recent information regarding the effectiveness of earthen lagoons for the containment and treatment of wastewater; and provide uniformity in regard to KDHE's approach to the design, construction, and use of wastewater lagoon systems serving municipal, commercial, and industrial facilities.

KDHE is specifically seeking input regarding concepts, issues, and concerns which the public believes should be reflected and incorporated into the proposed regulations. To that end, KDHE has prepared materials highlighting concepts and issues currently being evaluated by KDHE in an effort to help generate ideas and input from the public to be shared with KDHE. The purpose of the public meetings is to solicit that input which will assist in generating the framework and format for the proposed regulations. KDHE will provide brief presentations at the start of the public meeting explaining the state regulation adoption process followed by a summary of regulation concepts and issues under evaluation at this time.

Upon completion of the public meetings, KDHE will summarize and evaluate the comments received and develop draft regulations. The draft regulations will then be directed through the formal regulation adoption process which will include a public notice in the Kansas Register and one or more public hearings to receive input regarding the proposed regulations.

Copies of the public meeting Corel Presentation material summarizing regulation concepts and issues can be obtained by contacting Dorothy Geisler, Bureau of Water, Kansas Department of Health and Environment, 1000 S.W. Jackson Street, Suite 420, Topeka, Kansas 66612-1367, by calling [785-296-5545], by sending an email to [dgeisler@kdhe.state.ks.us](mailto:dgeisler@kdhe.state.ks.us), or by accessing the KDHE Bureau of Water website at <http://www.kdhe.state.ks.us/water/index.html> and then click on "Proposed Lagoon Liner Regs".

Persons wishing to provide concepts, issues, or concerns for consideration by KDHE may direct their comments to the attention of Dorothy Geisler at the email or office address previously referenced or by providing comments at the public meetings. Due to the detailed nature of the subject matter and expected significant interest in the development of the proposed regulations, it is recommended that written comments accompany any oral presentation at the public meetings. Submission of written comments at the public meetings will ensure that if time has to be limited for oral presentations because of the number of people desiring to provide input, that concepts, issues, comments, and concerns will be directed to agency staff, in full detail, and will also provide a mechanism by which agency staff can contact the individual in the event we seek additional information or clarification. KDHE will continue to receive written comments up through the close of business on April 28, 2003.

Any individual with a disability may request accommodation in order to participate in the public meetings. Requests for accommodation should be made at least five working days in advance of the meeting by contacting Dorothy Geisler as referenced previously.

### **Public Meeting Corel Presentation**

Concepts and issues currently being evaluated by KDHE are summarized below or may be viewed in Corel Presentation format by clicking **Proposed Lagoon Liner Concepts**.

Concepts and issues currently being evaluated for incorporation into proposed regulations fall within the following general areas: General Provisions; Hydrogeologic Information; Soil Liner Design; Soil Liner Post-Construction Testing; Impermeable Synthetic Membrane Liner Requirements; Impermeable synthetic Membrane Liner Post-Construction Testing; Minimum Standards of Design, Construction, and Maintenance; Water, Oil, or Gas Wells; Monitoring Wells; Plan and Specification Approval for Permit Issuance; Closure Requirements; and Variance Procedures. Specific concepts and issues currently being evaluated and which will be summarized at the start of the public meeting include the following:

#### **General Provisions**

- Maximum allowable soil liner seepage rate reduced from 1/4-inch per day to 1/10-inch per day.
- New lagoons prohibited if lagoon bottom and groundwater table separation is 10 feet or less.
- Lagoons proposed to be constructed over the Equus Bed Aquifer required to employ impermeable synthetic membrane liner.
- Grandfather existing lagoons so long as they do not pose a public health or environmental threat.
- Establish the 3-tier approach for industrial lagoons:
  1. Utilized for domestic wastewater only.
  2. Utilized for industrial activities with low pollution potential.
  3. Utilized for industrial process wastewater.
- Soil liners (1/10-inch per day or less criteria) may be employed for industrial lagoons used for domestic waste or industrial activities with low pollution potential.
- Require industrial lagoons used for process wastewater to employ an impermeable synthetic membrane liner system comprised of dual liners with an intermediate leak detection system.
- Establish a maximum allowable synthetic membrane liner leakage rate of 1/64-inch per day.



## **Hydrogeologic Information - Soil Liners**

- Require borings or excavations to depth 10 feet below proposed lagoon bottom.
- Minimum of one boring / excavation per acre of lagoon.
- Require logging of soils and confirmation whether groundwater is 10 feet below proposed lagoon bottom.
- Collect soil samples of proposed liner material for classification, compaction, and permeability analysis.
- Require evaluation and summary of hydrogeologic data.
- Require notification of KDHE to enable staff to witness field work.

## **Soil Liner Design**

- Require submission of hydrogeologic information, soil testing data, and calculations for the proposed soil liner system.
- Require a minimum of one foot of natural soil or compacted soil liner.

## **Soil Liner Post-Construction Testing**

- Require development and submission of soil liner post-construction testing protocol.
- Require post-construction certification by licensed professional engineer that the lagoon was constructed per KDHE approved plans and specifications.
- Require monitoring of construction.

## **Impermeable Synthetic Membrane Liner Requirements**

- Minimum of 30 mil thickness for membrane liner utilized.
- Provide certification from liner manufacturer on liner characteristics.
- Establish embankment compaction requirements.
- Liner installation to be conducted per the manufacturer's instructions.
- Require development of seam testing protocol.
- Require design to conform to KDHE's Minimum Standards of Design, Construction, and Maintenance unless different criteria established by the proposed regulations.

- Require notification of KDHE to enable staff to witness any hydrogeologic field work.
- Municipal and commercial lagoons employ single membrane liners.
- Industrial lagoons utilized for domestic wastes only or industrial activities with low pollution potential employ single membrane liners.
- Industrial lagoons used for process wastewater require dual liners with intermediate leak detection system that can be dewatered.
- Industrial lagoons require a minimum of two cells.
- For industrial lagoons, two feet of in-situ or compacted soil to be provided beneath the secondary liner.

### **Impermeable Synthetic Membrane Liner Post-Construction Testing**

- Require development and submission of synthetic membrane liner post-construction testing protocol.
- Require post-construction certification by a licensed professional engineer that the liner was installed consistent with the manufacturer's requirements (as approved by KDHE).
- Require monitoring of construction and liner installation.
- Require notification of KDHE to enable staff to witness whole pond leak testing of the lagoon liner.

### **Minimum Standards of Design, Construction, and Maintenance**

- Require the design and construction of lagoons to conform to:
  - effluent guideline standards
  - effluent limits
  - pretreatment requirements
  - other performance standards, and
  - Minimum Standards of Design for Water Pollution Control Facilities (1978) published by KDHE.

### **Water, Oil, or Gas Wells**

- Require identification of water, oil and gas wells within 600 feet of any proposed lagoon.

- Provide warning if suspected well cannot be located.
- Require notification of KDHE if the well is encountered during construction. Construction activities that would impact well to be terminated until authorized by KDHE.

### **Monitoring Wells**

- Monitoring wells required when directed by KDHE.
- Allow use of “equivalent technology” in lieu of monitoring wells.
- Require KDHE approval of monitoring well design and location or utilization of an “equivalent technology”.

### **Plan and Specification Approval for Permit Issuance**

- KDHE approvals prohibited as a defense for permit violations or impacts to public health or the environment.
- Require that any proposed deviation from approved plans and specifications receive authorization by KDHE prior to being implemented.

### **Closure Requirements**

- Require notification of KDHE of proposed closure or abandonment of lagoon.
- Require permit to be maintained until KDHE approves closure.
- Require submission of closure plan for new, modified or expanded lagoon.
- Establish contents of closure plan.
- Require maintenance / updating of closure plan.
- Establish time frame to complete lagoon closure (9 months maximum).

### **Variance Procedures**

- Provide procedures for requesting a variance of the proposed regulatory requirements.