Lesson 5 – Regulations & Monitoring

This lesson will help prepare you to meet the regulatory requirements for a small public water system operating in the State of Kansas.

Lesson 5 should take two hours to complete.

Section 5.1 - Brief History of Regulations

Presents a historical timeline of the Safe Drinking Water Act regulations.

Safe Drinking Water Act Timeline

1914

First Drinking Water Regulations Appear

The United States Public Health Service (USPHS) first issued drinking water regulations in 1914. The regulations applied only to systems that supplied water for interstate carriers. These regulations became the basis of regulations developed by individual states.
Safe Drinking Water Act Timeline

1962
Primary Contaminant Limits Are Set

The Public Health Service regulations were updated at various times, most significantly in 1962. Limits were set for 28 chemical and biological health-related contaminants and for contaminants that affected the appearance and the taste and odor of water. All 50 states accepted these standards with minor modification.

Safe Drinking Water Act Timeline

1969
Water System Compliance is Studied

In 1969 the United States Public Health Service funded a study to determine if existing water systems were meeting the 1962 standards. The study indicated that at least 41% of the systems did not meet minimum requirements. The majority of violations occurred in systems serving populations of less than 500.

Safe Drinking Water Act Timeline

1974
Safe Drinking Water Act Becomes Law

As a result of the 1969 study and interest by various members of Congress, the Safe Drinking Water Act (SDWA) was passed and signed into law on December 16, 1974.

The SDWA required the Environmental Protection Agency (EPA) to establish new drinking water standards. The standards established maximum contaminant levels (MCLs) for 23 contaminants. These are referred to as the “primary standards.”
Regulations and Monitoring

Tier 3 violations include:
- Monitoring or testing procedure violations, unless KDHE elevates to Tier 2.
- Operation under a variance or exemption.
- Special public notices (fluoride secondary maximum contaminant level (SMCL) exceedance, availability of unregulated contaminant monitoring results).

Safe Drinking Water Act Timeline

Secondary Contaminant Limits Are Set

In 1974 many states, not including Kansas, established maximum contaminant levels (MCLs) for "secondary standards". These are contaminants that only affect the taste, odor and appearance of water.

EPA requires public water systems to monitor and report the results of these contaminants to establish uniform guidelines for treatment processes.

Safe Drinking Water Act Timeline

Safe Drinking Water Act Reauthorization

The Safe Drinking Water Act is required to be reauthorized by Congress on a set schedule. This allows Congress to make changes to the act as necessary.

Safe Drinking Water Act Timeline

"Primacy" for States

One of the key points of the Safe Drinking Water Act was the ability of each state to maintain control of their drinking water program. This control is called "primacy" and is granted if the state meets certain EPA requirements.
**Safe Drinking Water Act Timeline**

**1986**

**Significant Changes**

In 1986 congress directed EPA to make significant changes in the Safe Drinking Water Act including the following tasks:

- Develop standards for 83 additional contaminants.
- Allow qualified Indian tribes primacy of their drinking water programs.
- Require filtration of all surface water sources through the Surface Water Treatment Rule.
- Identify best available technologies to control or remove contaminants.
- Require disinfection of all public water systems.
- Establish monitoring levels for certain “unregulated” contaminants.
- Ban lead solder, flux, and lead pipe in public water systems.
- Develop a groundwater protection program.
- Regulate 25 new contaminants every three years starting in 1991.

**Safe Drinking Water Act Timeline**

**1996**

**Focus Shifts to Source / System Protection**

The 1996 amendments to the Safe Drinking Water Act brought substantial change and improvement to the regulations. These changes reflect a concerted effort to prevent problems at drinking water sources and systems rather than simply looking for the effects of contamination.

In general, the amendments addressed four basic areas:

1) Prevention
2) Information
3) Contaminants
4) Funding
The 1996 amendments to the federal SDWA require states to implement a Source Water Assessment Program. The state is to ensure the following requirements have been met for each federally regulated drinking water system:

- Delineate source water protection area(s) (SWPA) for each source (well, spring, surface water intake).
- Inventory each SWPA for potential contaminant sources.
- Conduct a susceptibility assessment for each drinking water source.
- Make the findings of 1-3 readily available to interested parties.

In order to increase public information and involvement, water systems are required to implement two strategies (consumer confidence reporting and public notice of any contamination violation):
Safe Drinking Water Act Timeline

- Consumer Confidence Reports (CCRs): Every system is required to provide (to their customers) information about levels of source water contamination. This information must be provided to the customer yearly in a format set by EPA and the individual states. The method of providing the information to the customer varies for different size systems.

- Public Notice: Customers of public water systems will be notified within 24 hours of any contamination violation “that has the potential to have serious adverse affects on human health as a result of short term exposure.”
Safe Drinking Water Act Timeline

Contaminants

The 1996 amendments addressed prevention of contamination with the routine development of new rules and the updating of old rules. There was a movement toward a more “science-based” selection of contaminant monitoring and the speed and severity of penalties for non-compliance with the Safe Drinking Water Act were increased.

The requirement to add 25 new contaminants to be monitored every three years was dropped. Instead, EPA reviews at least five new contaminants every five years, and decides whether to demand monitoring after a risk-based assessment.

A “cost-benefit analysis” was established when setting maximum contaminant levels (MCLs) for new contaminants. The potential costs of future health problems is considered when deciding what level of contamination is acceptable and EPA was required to re-assess risks of arsenic, radon, disinfection by-products, cryptosporidium, and sulfate.

The amendment recognized that small systems often don’t have the financial ability to meet contaminant standards, and set up a system of variances and exemptions which allow small systems to use alternative technology or standards.

Time allowed for state-regulated systems to reach compliance was lengthened from 18 months to 36 months, or possibly up to 5 years except for systems regulated directly by EPA. These are military bases, national parks, and tribal systems which are required to be in compliance at the time the regulation becomes effective.

This amendment gave states the right to develop unique contaminant monitoring programs for small systems except for microbial, disinfection, or corrosion by-products monitoring.
Safe Drinking Water Act Timeline

Funding

1996 amendments bring federal funding to assist communities in installing and upgrading treatment facilities by establishing the Drinking Water State Revolving Fund (SRF). This fund assists communities with low interest loans for improvements that help meet compliance goals or health protection goals of the Safe Drinking Water Act. Eligibility for assistance depends on health risk, compliance, and economic need. Some SRF funds are used for prevention projects to protect water sources, provide operator certification, and implementation of the capacity development program.

Section 5.2 – Planning & Design

Provides a brief overview of planning and design regulations for small drinking water systems in Kansas.
Design Standards for Small Public Water Systems

Plans & Specifications

The KDHE Permits and Engineering Unit reviews and approves plans and specifications for drinking water projects for Kansas public water supply systems and issues permits for completed projects.

Minimum Design Standards

Reviews are based on KDHE’s minimum design standards entitled “Policies, General Considerations, and Design Requirements for Public Water Supply Systems in Kansas,” as well as other generally recognized drinking water standards.

(Visit the MDS website at http://www.kdheks.gov/pws/peu.html#standards for more information)

Construction projects that will disturb one or more acres of land are required to secure, prior to the start of construction, authorization to discharge stormwater runoff under the construction stormwater general permit S-MCST-0110-1. Information regarding this authorization can be found on the Construction Stormwater Program web site http://www.kdheks.gov/stormwater/index.html#construct.
Public Water Supply Permit Applications

The Engineering and Permits Unit issues permits for all public water supply systems. There are two types of public water supply permit applications. One is a permit application for modifications to an existing system. The other is a two-part permit application for a new system which contains a technical, financial, and management capacity assessment as part of the permit application.

State Revolving Fund

Public water supply systems may apply to the Kansas Public Water Supply Loan Fund (KPWSLF) http://www.kdheks.gov/pws/loan/loanfund.htm, also known as the State Revolving Loan Fund (SRF), for assistance in financing improvements to their systems. This Fund, which makes available low interest loans to water systems to help them finance improvements, is also administered by the Unit.

Section 5.3 – Water Quality

A brief discussion of water quality regulations pertinent to small public drinking water systems.
Water Quality

Introduction

Testing the water quality is a very important component of running a drinking water system in compliance with the SDWA. This is one of the main barriers between waterborne diseases and public health.

As an Operator, you must remember your primary focus is public health. An important question is how many barriers (i.e. sampling) can you implement between the water consumer and the waterborne diseases.

Public Water Supply System Monitoring Report

It is the intent of KDHE that each public water supply system in Kansas receives a water quality monitoring report (WQMR) annually. This report lists:

- What samples need to be collected
- The monitoring requirements for each sample
- Where to collect the samples

Remember:

- Call the lab and order the appropriate sample kit
- Do not rinse the sample bottles
- Do not overflow the sample bottles
- Follow the sampling instructions you get from the lab
- Fill out the chain of custody completely

If the sample bottles come with blue ice, the samples must be kept cold. Re-freeze the ice prior to collecting the sample. Make sure, when shipping samples to the lab, that the samples will arrive at the lab before they exceed their holding time.

For more information on sampling, see the KDHE “Public Water Supply Sample Information Guide.”
Primary and Secondary Contaminants

Contaminant Groups

In order to comply with the SDWA, EPA has divided the various contaminants into two specific groups; primary contaminants and secondary contaminants.

Primary Contaminants

Primary contaminants are those that pose a significant health hazard. They are regulated by the National Primary Drinking Water Regulations of the SDWA. The primary contaminants are:

- Inorganic Chemicals (IOCs)
  - There are 18 IOCs. The ones we are most familiar with are:
    - Arsenic
    - Nitrate
    - Fluoride
    - Lead and Copper
    - Disinfection By-products
    - Disinfectants
  
- Organic Chemicals (SOCs & VOCs)
  - Radionuclides
  
- Microorganisms
Primary and Secondary Contaminants

Arsenic

Arsenic has been found in Kansas. The majority is released naturally through processes like geothermal action or erosion.

Low levels of arsenic in drinking water do pose a health risk. As with most chemicals the more you are exposed over time the greater the health risk. Consequently the new MCL is 10 ppb or µg/L.

All community systems that detect arsenic at a level of 10 µg/L or above must include mandatory language in their annual CCR. Systems that detect arsenic between 5 µg/L and 10 µg/L must include educational language in their annual CCR.

(Review the EPA publication “Complying with the Revised Drinking Water Standard for Arsenic: Small Entity Compliance Guide, for more information.)

Primary and Secondary Contaminants

Nitrate

Nitrate has become one of the most common contaminants found in drinking water. It is naturally occurring. It also comes from leaching landfills, septic tanks, runoff from feedlots and agriculture lands. Nitrate can cause health problems for small children. Consequently it has both an action level of 5 mg/L and a MCL of 10 mg/L.

Excessive amounts of nitrate and nitrite can cause “blue-baby syndrome” (methemoglobinemia) in infants. To safeguard infants from this condition, Kansas sets a maximum contaminant level of 10 milligrams per liter (mg/l) for nitrate and 1 mg/l for nitrite. KDHE requires that public water supply systems with their own sources of water to monitor all their points of entry (POE) at least once a year for nitrate. Systems that exclusively use purchased water from other systems are exempt from this monitoring.

For more information, review EPA's Fact Sheet on Nitrate/Nitrite.
Primary and Secondary Contaminants

Fluoride

Fluoride is the only contaminant that has both a primary MCL of 4 mg/L, and a secondary MCL of 2 mg/L. Fluoride may occur naturally or may be added to the water. The SDWA does not require that systems add fluoride to the water. If fluoride is added, the decision to do so is made by the water department and local officials. When fluoride is added, the operator is required to monitor daily and report results to KDHE monthly. Naturally occurring fluoride is monitored via inorganic source water sampling.

Secondary Contaminants

Secondary contaminants are those that impact the appearance, taste, use and odor of the water. Unlike primary standards, secondary standards are “recommended” maximum contaminant levels and are not enforceable. Secondary contaminants and their recommended MCLs are listed below:

- Chloride (Cl) - 250 mg/L
- Color - 15 color units
- Fluoride (F) - 2.0 mg/L
- Iron (Fe) - 0.3 mg/L
- Manganese (Mn) - 0.05 mg/L
- Silver (Ag) - 0.10 mg/L
- Specific Conductivity - 700 umhos/cm
- Sulfate (SO4) - 250 mg/L
- Total Dissolved Solids (TDS) - 500 mg/L
- Zinc (Zn) - 5 mg/L
Primary and Secondary Contaminants

Iron and Manganese

The most common of the secondary contaminants are Iron (Fe) and Manganese (Mn).

Iron (Fe) is a common groundwater problem in Kansas and has a secondary drinking water standard of 0.3 mg/L. Iron does not cause health concerns, but causes aesthetic problems such as metallic tastes and orange-brown stains.

Like iron, manganese (Mn) is a naturally-occurring metal. It has a secondary drinking water standard of 0.05 mg/L. Manganese does not cause health concerns, but causes aesthetic problems such as objectionable tastes and blackish water stains.

Lead & Copper Rule

Lead

Even at low levels, lead has a negative effect on nearly every portion of the body. In children it can cause permanent brain damage, coma, convulsions and death. Other problems in children include a decreased growth rate, loss of hearing and the inability to maintain a steady posture.

Copper

Copper, on the other hand, is quite beneficial at low levels. However, at elevated levels, copper can cause nausea and diarrhea. Customer complaints of blue or green rings around bathroom fixtures are a likely indication of corrosive water with elevated levels of copper.

Lead & Copper Rule

Copper

Copper, on the other hand, is quite beneficial at low levels. However, at elevated levels, copper can cause nausea and diarrhea. Customer complaints of blue or green rings around bathroom fixtures are a likely indication of corrosive water with elevated levels of copper.
**Lead & Copper Rule**

**Action Levels**

Lead has an action level of 0.015 mg/L and a goal of zero. Copper, because it has some health benefits at low levels, has an action level of 1.3 mg/L. If lead test results exceed the action level in 10% of the samples, the community may be required to: install corrosion control techniques, treatment techniques, and a public education program, or continued sampling and monitoring.


**Sample Collection**

Lead and copper samples are to be collected from the consumer’s tap. The samples should be collected from bathroom sinks or kitchen faucets. The test results are indicative of the corrosive properties of water and the affects on plumbing.

**Disinfection By-Products**

**Disinfection By-Products Rule**

All systems that add chlorine to their drinking water must comply with the Disinfection By-Products Rule. Adding disinfection chemicals to water that contains organic matter, may create contaminants called disinfection by-products (DBPs). DBPs consist of total trihalomethanes (TTHMs) and haloacetic acids (HAA5s). The MCL for TTHMs is 80 ppb and the MCL for HAA5 is 60 ppb.

Although, at present, there is no conclusive evidence showing that DBPs in water are carcinogenic there are some concerns given the available research information.
Disinfection By-Products

Stage 1 DBP Rule

The Stage 1 D/DBPR establishes maximum residual disinfectant levels (MRDLs) for disinfectants such as chlorine, chloramines, and chlorine dioxide in your system. MRDL is the maximum amount of disinfectant allowed in the distribution system. The MRDL for chlorine and chloramines has been established at 4.0 mg/L, while the MRDL for chlorine dioxide has been set at 0.8 mg/L. Compliance with the MRDLs for chlorine and chloramines is based upon the concentration of disinfectant measured at the same times and locations in which your system collects bacteriological samples under the Total Coliform Rule. Compliance is determined based on a running annual average (RAA) of monthly averages.

Disinfection By-Products

Each system required to comply with the Stage 1 D/DBPR is required to develop and implement a monitoring plan that specifies 1) location and schedules for collecting all required samples, 2) procedures for calculating compliance with MCLs and MRDLs, and 3) how the entire distribution system is represented, if receiving water as a consecutive system or supplying water to a consecutive system.

For more information review the KDHE “Public Water Supply Survival Guide for the Stage 1 Disinfectants and Disinfection Byproducts Rule.”
Disinfection By-Products

Stage 2 DBP Rule

The State of Kansas does not have primacy for Stage 2 of the DBP rule to date. However, water systems must comply with Stage 2 requirements while continuing to comply with Stage 1 requirements.

All systems serving a population between 501 and 3,300 people must start complying with Stage 2 of the DBP rule by April 1, 2008. Systems serving a population of less than 500 people may receive a waiver from EPA for the Initial Distribution System Evaluation (IDSE).


Organic Contaminants

Introduction

Organic contaminants are a group of over 100 mostly man-made chemicals. They can occur in drinking water sources from industrial activity, landfills, gas stations or pesticide use. Many organic chemicals are carcinogenic (cancer causing), so they often have very low drinking water quality standards, usually measured in micrograms per liter (µg/L).

For more information on organic contaminants review the KDHE “Public Water Survival Guide for the Phase II and V Rule.”
Organic Contaminants

Volatile Organic Chemicals (VOCs)

VOCs are man-made compounds that are released from water into the air. They present a health risk not only from drinking contaminated water, but also from inhaling VOCs that escape from the water as it is used during showering or other home uses. VOCs also are absorbed directly through the skin during bathing and showering. They are commonly used as solvents, fuels, paints or degreasers. Some VOCs produce an odor in water, although it may not be obvious before the drinking water standard is exceeded. Nearly all VOCs have primary drinking water standards, because they cause cancer or damage to the liver, kidneys, nervous system or circulatory system. Twenty-one volatile organic compounds are regulated by KDHE. These regulations set monitoring frequencies and MCLs for each contaminant.

Organic Contaminants

Synthetic Organic Chemicals (SOCs)

Synthetic organic compounds (SOCs) are man-made compounds, many of which are chlorinated and used as herbicides, pesticides, fungicides and insecticides. There are 33 synthetic organic compounds that are regulated by KDHE.
Radionuclides

Uranium & Radon in Drinking Water

Uranium is a radioactive mineral that is frequently found in rocks and soil. Radiation in groundwater occurs mainly when the natural decay of uranium in rocks and soil comes in contact with groundwater. In most circumstances, this radiation occurs at such low levels as to be harmless to the health of humans.

Radionuclides Rule

Occasionally, in some areas of the state, radiation levels may present a health risk. For this reason, regulations require public water supply systems to monitor for radionuclides. The radionuclides rule affects all public water systems that use groundwater or a combination of groundwater and surface water. (Review EPA’s “Radionuclides Rule: A Quick Reference Guide, for more information.)

Coliform Bacteria

Indicator Organisms

Coliform Bacteria are a large family of bacteria that are used as indicator organisms of fecal contamination. If coliform bacteria are present in drinking water they indicate that the water may be contaminated, and/or that the disinfection process is inadequate. If coliform bacteria are present, immediate action is required. All public water supply systems are required by state regulation to disinfect all drinking water provided to the public. To evaluate the effectiveness of the disinfection method employed, all systems are required by state regulation to submit monthly water samples for total coliform testing.
Coliform Bacteria
Sampling Requirements

Coliform samples are collected from the distribution system at representative points. The Coliform sample sites must be documented and placed on a sample site map. Coliform samples are collected at least monthly. Systems can choose to have this bacteriological testing performed by KDHE’s microbiology laboratory or a private certified laboratory. A minimum of two water samples per month are required to be collected and tested for systems serving up to 2,500 people. Systems serving more than 2,500 are required to collect and test more water samples per month, increasing in sample number as the population served by the system increases.

For more information review the KDHE “Public Water Supply Survival Guide for the Total Coliform Rule.”

Section 5.4 – Water System Operations

Provides a brief discussion on regulations important to the operations of small public drinking water systems.
Regulations which pertain to a water system’s operations include rules related to the areas of:

- Sanitary surveys
- Emergency response plans
- Emergency disinfection procedures
- Certified operators
- Public water supply system annual fees

### Water System Operations

#### Sanitary Surveys – What are They?

A Sanitary Survey is an onsite review of the water source, facilities, equipment, and operation and maintenance of a public water system. The purpose is to evaluate the adequacy of the source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water. A sanitary survey will include, but is not limited to, the following elements:

- Source
- Treatment
- Distribution system
- Finished water storage
- Pumps, pump facilities, and controls
- Monitoring and reporting and data verification
- System management and operation
- Operator compliance with state requirements.

In Indiana sanitary surveys are required to be completed every five years at a minimum for community and noncommunity groundwater systems, and every three years for surface water systems. Sanitary surveys may also be mandated by state authorities.
IKDHE conducts sanitary surveys of all public water systems which use surface water or ground water under the direct influence of surface water. A sanitary survey shall be conducted for non-community water supply systems every five (5) years. For community water systems, a sanitary survey shall be conducted every three (3) years.

Water System Operations

Sanitary Surveys – How to Prepare for Them

A system can prepare for a sanitary survey by making sure the following has been done prior to the inspection.

- Organize system records and have distribution system maps available
- Have keys to open buildings, gates and well enclosures or hatches
- Complete general housekeeping in the well house
- Clear brush or other vegetation around the wellhead and reservoir

(Review EPA’s “Guidance Manual for Conducting Sanitary Surveys of Public Water Systems; Surface Water and Ground Water Under the Direct Influence (GWUDI)” for more information)
Emergency Response Plan

All public water supply systems in Kansas are required to have an emergency response plan (ERP) in place. A well thought out and practiced plan can save time, lives and money.

An emergency is considered to be anything that is a threat to water quality or quantity. The threat can be caused by floods, earthquakes, wind storms, power outages, vandalism, and direct intentional threats against a water system.


Emergency Response Plan – System Vulnerability

What is your water system most vulnerable to? Make sure you have clearly identified your procedures and your support team. Keeping the ERP current and accessible is vital - do not keep the only copy on a computer. You need be able to access the ERP at all times.

Disinfection of Drinking Water

As a water purveyor you may be required to disinfect continuously as part of your routine operation. Remember, if you are required to disinfect, you must disinfect twenty-four hours a day, seven days a week. This is extremely important to assure safe drinking water.

It is important that you maintain the residual established for your system. You must monitor for chlorine residual daily and report your results monthly to the State.
Emergency Disinfection

If the integrity of the drinking water system is compromised, emergency disinfection may be required. Emergency disinfection may also be necessary if total coliform, fecal coliform or E. Coli has been found present in both routine and repeat samples.

When emergency disinfection is required something has happened within the water system to possibly jeopardize public health and KDHE must be notified.

Certified Operators and Operator Certification

The KDHE administers a mandatory water and wastewater operator certification program. The Kansas Legislature first passed laws in 1975 requiring all water supply systems and wastewater treatment facilities to be under the supervision of an operator certified by KDHE. Class I – IV certified water and wastewater operators must attend ten hours of training during every two-year renewal period. Five hours of training are required every two years for Small Systems operators.

For more information regarding operator certification in Kansas review the “Operator Certification Requirements for Water and Wastewater Treatment Facilities.”

Public Water Supply System Annual Fee Fund

Fees collected quarterly for the inspection and regulation of public water supply systems are put into the Public Water Supply Fee Fund. Monies deposited shall be expended only to: (1) inspect and regulate public water supplies and (2) provide training, assistance and technical guidance to public water supply systems, including on-site technical assistance.

For more information on the Public Water Supply Fee Fund the “Kansas Statutes Pertaining to Public Water Supply.”
Surface Water Treatment Rules

Surface Water Treatment Rules

The Interim Enhanced Surface Water Treatment Rule (ESWTR), Long Term 1 ESWTR, Long Term 2 ESWTR, Disinfection Byproduct Rule and the Filter Backwash Rule, are intended to reduce the public’s exposure to microbial contaminants.

Since these rules mainly apply to water systems serving populations greater than 3,300 they will not be discussed in detail in this course. However, if these rules do apply to you, you can find more information at http://www.kdheks.gov/pws/dmcu.html#Surface%20Water%20Treatment.

Ground Water Rule

Introduction

The federal Ground Water Rule (GWR) was finalized in October 2006. The purpose of the GWR is to protect groundwater sources from viral and bacterial contamination.

The KDHE will implement the GWR once it is adopted as a state rule. Public water system requirements that will be affected include sanitary surveys, source monitoring (microbial), corrective actions, treatment, and public notification. For more information on the GWR review EPA’s “Complying with the Ground Water Rule: Small Entity Compliance Guide.”

There are several things you can do to prepare for the GWR before its December 1, 2009 compliance date. Check out the following topics for suggestions to preparing for the for the GWR.
Ground Water Rule

Sanitary Surveys

To meet compliance requirements for the GWR correct significant deficiencies noted in your most recent sanitary survey. Significant deficiencies may include an inadequately sealed well, chemical or bacteriological sources of contamination within the sanitary control area, cross-connections and similar risks. To understand the significant deficiencies and/or recommendations specific to your system in the sanitary survey report, contact KDHE.

Ground Water Rule

Source Monitoring

Each individual well in a well field must have a tap for collecting water samples. Install a sample tap at each source (well), if one does not already exist. The GWR requires a sample to be collected from the source when a total coliform distribution system sample is unsatisfactory. This GWR “triggered” source sample must be collected within 24 hours of receiving an unsatisfactory total coliform distribution system sample, and must be analyzed for a fecal indicator. If a sample is not collected from the source within 24 hours, the system will receive a monitoring violation.
Ground Water Rule

Update Emergency Response Plan

Update your Emergency Response Plan so you are ready to provide water from an alternate source, if necessary. Corrective action will be required if a significant deficiency is discovered during a sanitary survey, or if you have a fecal indicator in your source water.

Depending on the deficiency or the extent of fecal-related contamination, you may not be able to provide water from your system. A temporary alternate water source may be necessary.

An up-to-date emergency response plan will prevent you from scrambling for information and assistance should an emergency arise ... plus, your customers will not be without water any longer than necessary.

Ground Water Rule

Treatment

If you currently treat the water for reduction of viruses, contact KDHE. The KDHE will be confirming water system treatment records to identify those systems that are currently achieving 4-log (99.99%) inactivation/removal of viruses. Systems that currently treat to this level will not be required to collect the “triggered” source sample. Instead, they will be required to meet treatment technique monitoring requirements. It is important for KDHE to know which type of monitoring will be required of your water system.
Wellhead Protection Program

The Safe Drinking Water Act requires that all federally defined public water systems using groundwater as their source implement a wellhead protection program. The Kansas Wellhead Protection Program establishes standards and procedures by which counties, cities, rural water districts and others public water suppliers develop Wellhead Protection Plans. Public input and involvement is crucial and must be continuous throughout the process of developing the plan. KDHE has identified six important steps to developing successful wellhead protection programs.

1) Appoint a local wellhead protection committee.
2) Obtain wellhead protection area (WHPA) delineation.
3) Conduct a pollutant source inventory.
4) Develop management strategies to reduce the quantity of potential pollutants occurring in the WHPA.
5) Conduct a local public meeting about the wellhead protection plan.
6) Implement the actions defined in the wellhead protection plan.

Review “Kansas Wellhead Protection Program” for more information.

Section 5.5 – Reporting & Record Keeping

Covers those items important to reporting water quality information to government officials and the public and the importance of keep good records.
Regulations and Monitoring

**Reporting and Record Keeping**

**Introduction**

There are four types of reporting required by the SDWA.

1. Monthly reporting to the KDHE of routine monitoring and test results.
2. Reporting to the KDHE the results of routine water quality monitoring.
3. Distribution of the annual consumer confidence report.
4. Public notification of violations.


**Monthly Reporting Forms**

Monthly monitoring must be completed and mailed on a set timeline. This includes reporting turbidity, chlorine, fluoride, pH, temperature, and coliform test results. Monthly monitoring results are sent by the laboratory to the KDHE on or before the 10th of the following month.

**Routine Monitoring Reports**

Reports of routine water quality monitoring include test results for lead and copper, nitrite/nitrate, inorganic compounds, organic compounds, radionuclides, and disinfection by-products. Water quality test results are to be sent to the KDHE within 10 days of receipt of the results from the laboratory.
Consumer Confidence Report

Introduction

The consumer confidence report (CCR), identified in the 1996 Amendments as the “Consumer Right to Know” is an annual report to drinking water system customers on the quality and safety of their drinking water. The primary purpose of the CCR is to inform water customers about their drinking water. CCRs assist people in making informed choices about the water they drink. All community public water supply systems are required to submit an annual CCR. A community water system (CWS) is defined as a system that serves at least 25 residents year round or has at least ten service connections used by year-round residents.
Consumer Confidence Report

Reporting Requirements

Reports are due by July 1 each year for the previous calendar year. Small water systems may be able to provide this report by posting it and making copies available to customers upon request. Though water systems are only required to deliver CCRs to bill addressees, systems are expected to make serious and “good faith” efforts to reach non-bill paying consumers. The CCR will include:

- The source of the drinking water
- Susceptibility of the source to contamination
- How the customer can obtain Safe Drinking Water Act information
- The highest levels of detected contaminants
- Likely source(s) of the detected contaminants
- Definitions and health effects of contaminants exceeding a MCL
- Actions taken by the utility to reduce the contamination

The source of the drinking water

Susceptibility of the source to contamination

How the customer can obtain Safe Drinking Water Act information

The highest levels of detected contaminants

Likely source(s) of the detected contaminants

Definitions and health effects of contaminants exceeding a MCL

Actions taken by the utility to reduce the contamination

The utilities’ compliance with drinking water regulations

Phone number for SDWA Hotline and local sources of additional information

An educational statement for vulnerable populations for avoiding Cryptosporidium

Educational information on nitrate, arsenic, or lead if the detected level is over 50% of EPA standards

Consumer Confidence Report

Annually, by April 1st, CWSs that sell water to other community water systems must provide the purchasing systems with source water information and inorganic (IOC), volatile organic (VOC), and synthetic organic (SOC) chemical monitoring results and any other required water quality, compliance, and violation information that will enable the purchasing systems to produce their own CCRs.

For more information review the KDHE’s “Public Water Supply Survival Guide for the Consumer Confidence Report Rule.”
Record Retention

Introduction

Many records for a water system such as treatment information, monitoring data, waivers and violations must be kept for a certain period of time. The following are guidelines as stated in the 40 CFR 141.

Record Retention

Microbial & Turbidity Results

Records of microbiological analyses and turbidity analyses shall be kept for not less than five years.

Record Retention

Monitoring Plans

Copies of monitoring plans shall be kept for the same period of time as the records of analyses taken under the plan are required to be kept. Records of chemical (and radiological) analyses made pursuant to this part shall be kept for not less than 10 years.
Record Retention

Consumer Confidence Reports
Copies of the CCR must be maintained for three years.

Record Retention

Waivers
Records concerning a variance or exemption granted to the system shall be kept for a period ending not less than five years following the expiration of such variance or exemption.

Record Retention

Violations
Records of action taken by the system to correction violations of primary drinking water regulations shall be kept for a period of not less than three years after the last action taken with respect to the particular violation involved.
**Record Retention**

**Sanitary Survey**

Copies of any written reports, summaries or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by any local, State or Federal agency, shall be kept for a period of not less than 10 years after completion of the sanitary survey involved.

**Record Retention**

**Public Notice**

Copies of public notices must be kept for three years after issuance

**Public Notification**

**Notifying the Public**

When there is a violation of one or more of the provisions of the SDWA the public must be notified. The notification method and timelines for notification are dependent upon the impact of the violation on public health. There are three categories of notification called Tier 1, Tier 2, and Tier 3.

(Review KDHE’s “Public Water Supply Survival Guide for the Public Notification Rule,” for more information.)

Public Notification

Tier 1 violations include:

- Fecal coliform violations; failure to test for fecal coliform after initial total coliform sample tests positive
- Nitrate, nitrite, or total nitrate/nitrite MCL violation; failure to take confirmation sample
- Chlorine dioxide MRDL violation in distribution system; failure to take samples in distribution system when required
- An exceedence of maximum allowable turbidity level, if elevated to Tier 1 by the KDHE
- Special notice for non-community water systems (MCWSs) with nitrate exceedences between 10 mg/L and 20 mg/L, where they are allowed to exceed 10 mg/L by KDHE
- A waterborne disease outbreak or other waterborne emergency
- Other violations or situations determined by the KDHE

Public Notification

Tier 2 Violation

When a Tier 2 violation occurs, the public must be notified as soon as practical or within 30 days. Repeat the notice every three months until the violation is resolved.

For Community Water Systems: Notice via mail or direct delivery is required
For Noncommunity Water Systems: Notice via posting, direct delivery, or mail is acceptable

KDHE may permit alternate methods. All public water systems must use additional delivery methods reasonably calculated to reach other consumers not notified by the first method.