

Sanitary surveys illustrate a water utility's deficiencies

This is the first of a two part series on sanitary surveys. This article explains what a sanitary survey is, who needs it, and its benefits. The second part, which will be published in the March 2005 issue of *The Lifeline*, will explain a sanitary survey from the inspection to the final report and water system actions.

What's a sanitary survey?

A sanitary survey is an important tool to help water systems protect public health.

As described by KDHE, sanitary surveys are onsite reviews of the water source, facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources, and operation and the distribution of safe drinking water. In a nutshell, sanitary surveys are performed for these main purposes:

1. The capability of a drinking water system to consistently and reliably deliver an adequate quality of drinking water to the consumer, and
2. The system's compliance with federal and state drinking water regulations.

Who needs one?

The Code of Federal Regulations sets standards for public water systems (40 CFR 142.10(b)(2)). Also as a condition of state primacy (meaning that the Kansas Dept. of Health and Environment has authority to regulate public water systems),



A booster pump station should have a by-pass or a second pump to allow water flow to continue during times when maintenance is being performed or in case of a pump failure. If the single pump is out of service, there is often no way for the system to maintain water supply beyond the pumping station. Typically, a sanitary survey would identify this sort of deficiency.

states are required to have "a systematic program for conducting sanitary surveys of public water systems not in compliance with State primacy

for all surface water and ground water under the direct influence of surface water.

Benefits of the survey

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drinking water regulations." The Total Coliform Rule (TCR) requires that all systems that collect less than five routine total coliform samples per month periodically undergo a sanitary survey. The Surface Water Treatment Rule (SWTR) requires an annual inspection for surface water systems that do not filter. The Interim Enhanced Surface Water Treatment Rule (IESWTR) further elaborates on the sanitary survey requirements

There are many benefits of the survey. These include: operator education, source protection, risks evaluation, etc. Each system will find benefits from the survey to help protect public health.

A sanitary survey is composed of eight elements. Each element is important in providing a safe and high quality of drinking water that protects public health. Sanitary surveys are an in-depth inspection of the

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entire water system and its operation and maintenance. They determine if a system's source, facilities, equipment, operation, management, and maintenance are able to produce a safe drinking water. They also evaluate the utility's compliance with drinking water regulations, both federal and state. Conducting sanitary surveys on a regular basis is good to identify potential problems and reasons for finished water quality patterns that may need to

not apply to every system. It does provide a broad overview of the eight elements.

The Kansas Capacity Development survey that each system completes enhances the on-site inspection. The table at right lists the frequency that a sanitary survey is to be completed. The sanitary survey along with the Kansas Capacity Development survey will ask more than 100 questions about your system. Each system will receive a report of findings from

Public Water Supply Systems

What is a significant deficiency? That's any defect in a system's design, operation, maintenance, administration, or any failure or malfunction of

System Type	Minimum Survey Frequency
Non-community Water System	Every five years
Community Water System	Every three years

any system component that the state determines to cause, or have the potential to cause, an unacceptable risk to health or that could affect the reliable delivery of water.

The checklist on the next page will help each rural water district or municipal water system identify possible deficiencies that exist in their utility. Mark any item that is not a potential deficiency. Take a close look at each item. For example, are any of your facilities in a flood zone? Are all of your treatment

If significant deficiencies are found, the system has 45 days to respond on the action that will be taken to correct deficiencies.

be addressed.

I have included a Sanitary Survey Self Inspection checklist to help you identify areas that may need to be looked into further. The checklist items do

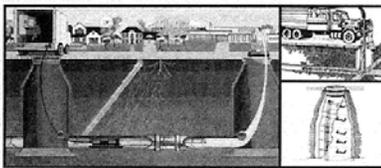
the sanitary survey. If significant deficiencies are found, the system has 45 days to respond on the action that will be taken to correct deficiencies.

Sanitary Survey Frequency for

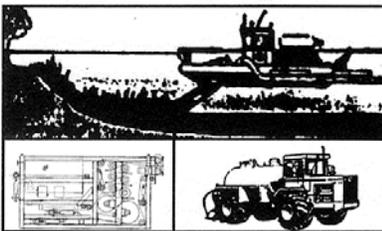
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processes working properly? Does your utility disinfect new and repaired water lines? Are you maintaining proper maintenance on all equipment? Take a close look of each of the eight elements; this will help identify possible deficiencies. I would be happy to assist any system to perform a sanitary self-check.

THE SANITARY “SELF-CHECK”

Eight Elements of Sanitary Survey

1. Source (Protection, Physical Components, and Condition)
2. Treatment
3. Distribution System
4. Finished Water Storage
5. Pumps/Pump Facilities and Controls
6. Monitoring/ Reporting/ Data Verification
7. Water System Management/ Operation
8. Operator Compliance with State Requirements

SANITARY SURVEY SELF INSPECTION

SOURCE

- Source Protection Plan
- Source Water Quality
- Source Water Quantity
- Location of Source Facilities
- Capacity of Source Facilities
- Design of Source Facilities
- Condition of Source Facilities
- Transmission of Source Water

TREATMENT

- Location of Treatment Facility
- Treatment Plant Schematic/ Layout Map
- Capacity of Treatment Facilities
- Treatment Processes and Facilities
 - Presedimentation
 - Flow Control and Metering
 - Rapid Mix
 - Chemicals and Feed Systems
 - Coagulation / Flocculation
 - Sedimentation / Clarification
 - Filtration
 - Disinfection
 - Waste Streams
- In-Plant Cross-Connection Control

DISTRIBUTION

- Distribution Maps and Records
- Field Sampling / Measurements
- Distribution System Design and Maintenance
 - Design / Material Standard
 - Maintenance Procedures
 - Disinfection of New Water Lines
 - Disinfection of Repaired Water Lines
 - Flushing Procedures
 - Cross-Connection Control
 - Elimination of Water Loss

FINISHED WATER STORAGE

- Type of Storage
- Location of Storage
- Capacity of Storage
- Design of Storage
 - Storage Tank Components
 - Hydropneumatic Tank Components (pressure tanks)
- Painting of Storage Tanks
- Cleaning and Maintenance of Tanks
- Site Security

PUMPS / PUMP FACILITIES AND CONTROLS

- Types of Pumps
- Capacity of Pumps
- Condition of Pumps
- Pumping Station
 - Location of Pumping Facilities
 - Pumping Station Structure
 - Pumping Station Appurtenances

MONITORING / REPORTING / DATA VERIFICATION

- Regulatory Record Review
- Water Quality Monitoring Plans
 - Non-Regulatory Monitoring Plans
 - Regulatory Monitoring Plans

WATER SYSTEM MANAGEMENT / OPERATION

- Administrative Record Review
- Water Quality Goals
- Water System Management
- Water System Staffing
- Operation & Maintenance Manuals/Procedures
- Water System Funding

OPERATOR COMPLIANCE

- Certification of Operators
- Competency of Operators