



Forms

Contact List

SBMS Instructions

Help Desk

Find Subject Areas:

Index ▼

Categories ▼

Alpha ▼

Show Side Menu

Search Subject Areas & Legacy Documents: Subject Area: **Drinking Water****Contents: Drinking Water**Effective Date: **March 1999**Point of Contact: [Environmental Compliance Representative \(ECR\)](#)

Section	Overview of Content (see section for full process)
Introduction 1. Performance of a Potable Water Hazard Assessment	<ul style="list-style-type: none"> • Conduct a hazard assessment. • Request installation control devices if hazards exist.
2. Installation of a Primary Cross Connection Control Device	<ul style="list-style-type: none"> • Request installation from PE. • Test device annually.
3. Installation of a Secondary Cross Connection Control Device	<ul style="list-style-type: none"> • Request installation from either PE or a contracted vendor. • Test device annually.
4. Maintenance and Testing of Cross Connection Control Devices	<ul style="list-style-type: none"> • Test devices at least annually. • If a device fails, repair or replace it immediately and retest. • Tag the device with the date of the test. • Forward copy of test report to ESD.

[Definitions](#)**Exhibits**

None

Forms

None

Training Requirements and Reporting Obligations

This subject area does not contain training requirements.

This subject area may or may not contain reporting obligations. See the subject area until obligations are listed here.

References

New York State Department of Health "Cross Connection Control Guide."

Standards of Performance

All staff and guests shall comply with applicable Laboratory policies, standards, and procedures, unless a formal variance is obtained.

All staff and guests shall promptly report accidents, injuries, ES&H deficiencies, emergencies, and off-normal events in accordance with procedures.

Managers shall analyze work for hazards, authorize work to proceed, and ensure that work is performed within established controls.

All staff and users shall identify, evaluate, and control hazards in order to ensure that work is conducted safely and in a manner that protects the environment and the public.

Management System

This subject area belongs to the **Environmental Management System** management system.

[Back to Top](#)

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Forms Contact List SBMS Instructions Help Desk

Find Subject Areas: Index Categories Alpha

Show Side Menu Search Subject Areas & Legacy Documents:

Subject Area: **Drinking Water**

Introduction: Drinking Water

Effective Date: **March 1999**

Point of Contact: [Environmental Compliance Representative \(ECR\)](#)

The distribution and supply of drinking water is regulated under the federal Safe Drinking Water Act (SDWA), the requirements of which are codified in the Code of Federal Regulations 40 CFR Part 141 - 143. The Laboratory maintains six wells for the supply of potable water to the Laboratory community. The operation, maintenance and monitoring of this water supply, associated treatment systems and distribution system is the responsibility of the Plant Engineering Division. Monitoring requirements are prescribed annually by the Suffolk County Department of Health Services, which has been delegated authority by the New York State Department of Health Services.

The Safe Drinking Water Act requires that public water suppliers implement practices to protect the public water supply from sanitary hazards, including connection of potable water supplies to systems containing hazardous substances (i.e., cross connections). Such practices include the implementation of a rigorous cross connection control program. Cross connection control by containment is the desired method of protecting a public water system and includes the installation of cross connection control devices at the interface between the facility and the domestic water main. Installation of cross connection control devices is required at all facilities where hazardous materials are used in a manner that could result in the introduction of these hazardous substances into the domestic water system under any condition. In addition, cross connection control at the point of use is also required to protect other users within a specific facility from hazards posed by other facility operations.

At the Laboratory, installation, and maintenance of primary cross connection control devices at the interface to the potable water main is the responsibility of the Plant Engineering Division. To facilitate annual testing of these devices, Departments and Divisions must provide the necessary access and time needed to test and repair these devices. Installation and maintenance of secondary control devices at the point of use is the responsibility of the facility owner/operator.

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SBMS [Forms](#) [Contact List](#) [SBMS Instructions](#) [Help Desk](#)

Find Subject Areas:

Show Side Menu **Search Subject Areas & Legacy Documents:**

Subject Area: **Drinking Water**

1. Performance of a Potable Water Hazard Assessment

Effective Date: **March 1999**

Point of Contact: [Environmental Compliance Representative \(ECR\)](#)

Applicability

This information applies to all Laboratory facilities connected to the BNL Potable Water System.

Required Procedure

All facilities connected to the BNL Potable Water System shall be assessed for the degree of hazard they present to the potable water supply.

Step 1	For facilities not equipped with primary cross connection control devices, the facility owner or operator reviews their facility and its operations to determine if cross connections exist that could lead to the introduction of hazardous constituents into the potable water distribution system. This review includes an evaluation of the types, quantity and method of chemical use, plumbing connections to equipment, and other sanitary hazards posed by facility operations. Your Environmental Compliance Representative or the Environmental Subject Matter Expert can assist in this assessment. Guidelines for conducting a hazard assessment are available in the New York State Department of Health "Cross Connection Control Guide."
Step 2	If cross connections exist that pose a hazard to the potable water system, the facility owner requests through the Plant Engineering Division that the appropriate cross connection control device be installed. Facilities requiring primary devices include: hospitals, laboratories, clinics, metal finishing facilities, boiler facilities, greenhouses, and laundries.
Step 3	All facility owners review their facility operations for hazards at the point of water use. If a sanitary hazard exists that poses a risk to the facility occupants, the facility owner provides secondary control devices. Your Environmental Compliance Representative or the Environmental Subject Matter Expert can assist in this assessment and for determining what type of secondary device is best.
Step 4	A new hazard assessment must be performed upon facility modification, or a change in facility occupancy or operation to ensure continued protection of the potable water system.

Guidelines

All building connections to the BNL Potable Water System should be equipped with a primary cross connection control device, regardless of the hazards posed.

Sinks, hose connections, and other point of use connections that have the potential to pose a sanitary hazard should be equipped with secondary control devices.

References

New York State Department of Health "Cross Connection Control Guide."

| [Continue to Next Page](#) |

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SBMS [Forms](#) [Contact List](#) [SBMS Instructions](#) [Help Desk](#)

Find Subject Areas: Index Categories Alpha

Show Side Menu Search Subject Areas & Legacy Documents:

Subject Area: **Drinking Water**

2. Installation of a Primary Cross Connection Control Device

Effective Date: **March 1999**

Point of Contact: [Environmental Compliance Representative \(ECR\)](#)

Applicability

This information applies to all Laboratory facilities connected to the BNL Potable Water System.

Required Procedure

All facilities connected to the BNL Potable Water System that pose a sanitary hazard to the BNL Potable Water Distribution System must be equipped with a Primary Cross Connection Control Device.

Step 1	Upon determination of the need for a primary cross connection control device via a potable water hazard assessment, the facility owner requests that the Plant Engineering Division provide such a device.
Step 2	The Plant Engineering Division reviews all requests and assesses the hazard posed by each facility. Installation of the device is prioritized based upon the degree of hazard. The Plant Engineering Division retains responsibility for the installation of the primary device.
Step 3	The Plant Engineering Division installs approved primary devices in accordance with New York State Department of Health requirements. Suffolk County Department of Health Services approves the installation of such devices. The facility owner is aware of the location of each of the devices installed at their facility.
Step 4	Upon installation completion, add the device to the Maintenance Management Center's Preventative Maintenance Program for annual testing.

Guidelines

All building connections to the BNL Potable Water System should be equipped with a primary cross connection control device regardless of the hazards posed.

All sinks, hoses and other point of use connections that have the potential to pose a sanitary hazard should be equipped with a secondary control device.

Primary Cross Connection Control Devices should be installed as close to the water main as practicable.

| [Go to Previous Page](#) | [Continue to Next Page](#) |

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SBMS [Forms](#) [Contact List](#) [SBMS Instructions](#) [Help Desk](#)

Find Subject Areas: Index Categories Alpha

Show Side Menu Search Subject Areas & Legacy Documents:

Subject Area: **Drinking Water**

3. Installation of a Secondary Cross Connection Control Device

Effective Date: **March 1999**

Point of Contact: [Environmental Compliance Representative \(ECR\)](#)

Applicability

This information applies to all Laboratory facilities connected to the BNL Potable Water System.

Required Procedure

All Departments/Divisions using the BNL Potable Water System review their operations, activities, and equipment to determine if their operations pose a sanitary hazard to the other facility occupants and to ensure that a secondary cross connection control device is installed, if necessary.

Step 1	Upon determination of need for a secondary cross connection control device, the facility owner ensures that a device is installed. Installation can be completed via a request to the Plant Engineering Division or a contracted vendor. The type and size of the device should be determined in accordance with the New York State Department of Health guidance documents.
Step 2	The installation of double check valves or reduced pressure zone devices shall be in accordance with New York State Department of Health requirements. Qualified personnel install all devices and the New York State Department of Health approves all installations. Install atmospheric vacuum breakers in accordance with good engineering practices.
Step 3	Upon installation completion, add all double check valves and reduced pressure zone devices to the Maintenance Management Center's Preventative Maintenance Program for annual testing, unless an alternate testing program is approved.

Guidelines

All building connections to the BNL Potable Water System should be equipped with a primary cross connection control device, regardless of the hazards posed.

All sinks, hoses, and other point of use connections with the potential to pose a sanitary hazard should be equipped with a secondary control device.

To ensure that all devices are installed in accordance with State requirements and that the installation is fully protective of the BNL Potable Water System, the Plant Engineering Division should be involved in the installation of all devices.

| [Go to Previous Page](#) | [Continue to Next Page](#) |

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Forms
Contact List
SBMS Instructions
Help Desk

Find Subject Areas: Categories

Show Side Menu **Search Subject Areas & Legacy Documents:**

Subject Area: **Drinking Water**

4. Maintenance and Testing of Cross Connection Control Devices

Effective Date: **March 1999**

Point of Contact: [Environmental Compliance Representative \(ECR\)](#)

Applicability

This information applies to all Laboratory facilities connected to the BNL Potable Water System that are equipped with primary or secondary cross connection control devices.

Required Procedure

All primary and secondary cross connection control devices (i.e., reduced pressure zone devices and double check valves) must be tested at least once per year to ensure that the potable water system is continually protected against sanitary hazards. In addition, these devices must be maintained in accordance with the manufacturer's recommendations. All devices should be fully overhauled every five years. Since atmospheric and pressure vacuum breakers cannot be tested, these devices should be periodically inspected for signs of wear or corrosion and repaired or replaced as needed.

Step 1	The facility owner ensures that all testable cross connection control devices are fully accessible for inspection and testing.
Step 2	The Plant Engineering Division retains responsibility for annual testing of all primary devices. The facility owner ensures that all devices are tested at least annually by providing an opportunity for this testing.
Step 3	The Plant Engineering Maintenance Management Center generates work orders for testing of all primary devices. Upon notification that testing is being conducted, the facility owner provides the access necessary to perform such testing. If scheduling conflicts exist, the facility owner provides an alternate period for testing. All primary and secondary devices, except for vacuum breakers or other nontestable devices, must be tested annually. Note: Testing of secondary devices should be coordinated with the Plant Engineering Division, Maintenance Management Center. Licensed or certified backflow device testers must perform all testing and maintenance.
Step 4	Upon satisfactory testing, Plant Engineering staff or the certified tester tag the device with the date of the test. A copy of the test report must be forwarded by the tester to the Environmental Services Division (ESD). The ESD submits all test reports to the Suffolk County Department of Health Services as they are received.
Step 5	If a device fails, the device must be repaired or replaced immediately and retested . Record the failure and repair or replacement on the test report.

Guidelines

All building connections to the BNL Potable Water System should be equipped with a primary cross connection control device, regardless of the hazards posed.

All sinks, hoses, and other point of use connections with the potential to pose a sanitary hazard should be equipped with a secondary control device.

To ensure that all devices are installed in accordance with State requirements and that the installation is fully protective of the BNL Potable Water System, the Plant Engineering Division should be involved in the installation of all devices.

| [Go to Previous Page](#) |

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Forms
Contact List
SBMS Instructions
Help Desk

Find Subject Areas: Categories

Show Side Menu **Search Subject Areas & Legacy Documents:**

Subject Area: **Drinking Water**

Definitions: Drinking Water

Effective Date: **March 1999**

Point of Contact: [Environmental Compliance Representative \(ECR\)](#)

Term	Definition
annual	Once within a calendar year.
back-flow	A flow condition, induced by a differential in pressure, that causes the flow of water or other liquid and/or gases into the distribution pipes of a public water supply from any source other than its intended source.
cross connection	The physical interconnection of the potable water system to any equipment, operation, or activity that poses a sanitary hazard in the event of a back-flow condition.
cross connection control device	A mechanical device that prevents the back-flow of hazardous constituents from a process, activity or operation due to a pressure differential. Such devices include double check valves, reduced pressure zone devices, atmospheric vacuum breakers, air gaps, etc.
primary device	A cross connection control device installed at the interface between the potable water main and the building supply. Acceptable primary devices include approved double check valves and reduced pressure zone devices. The purpose of a primary device is to protect the water distribution system and neighboring facilities from the injection of hazardous constituents.
secondary device	A cross connection control device installed at the point of water use. Such devices include double check valves, reduced pressure zone devices, atmospheric vacuum breakers, air gaps, etc. These devices protect the facility internal occupants from injection of hazardous constituents by the operation of others.

[Back to Top](#)

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Forms
Contact List
SBMS Instructions
Help Desk

Find Subject Areas:

Show Side Menu **Search Subject Areas & Legacy Documents:**

Subject Area: *Drinking Water*

Revision History: Drinking Water

Point of Contact: [Environmental Compliance Representative \(ECR\)](#)

Revision History of this Subject Area

Date	Description	Management System
March 1999	This is a new subject area.	Environmental Management System

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