

WSU DRINKING WATER, CROSS-CONNECTION CONTROL AND WATER CONSERVATION PROGRAM

Revised September 11, 2009

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PURPOSE

Washington State University (WSU) is responsible for planning, operating, sampling, maintaining and protecting University owned public drinking water systems and water supply connections to meet the requirements of WAC 246-290 through WAC 246-296, WAC 173-160 and WAC 51-56. WSU is also responsible for helping to ensure that the quality of water WSU facilities receive from non-WSU public water systems meets state and federal requirements.

AUTHORITY AND RESPONSIBILITY

The Water Board, comprised of staff from Facilities Operations, Environmental Health and Safety (EH&S), Housing and Dining Services, Capital Planning and Development, and Regional Campus and Research Unit (RCRU) representatives, has the ultimate authority and responsibility for all WSU water systems and facilities located around the state to meet all applicable regulations. The Water Board is also responsible for planning, constructing and repairing, operating, sampling, maintaining, and protecting WSU's public drinking water systems and water supply connections throughout the state to meet the requirements in WAC 246-290 through WAC 246-296, WAC 173-160 and WAC 51-56.

The Water Board must develop all policies, procedures, and this WSU Drinking Water, Cross-connection Control and Water Conservation Program document (hereinafter referred as the Program document) for more specific information. This Program document provides detailed planning, development, construction and repair, maintenance, sampling, monitoring, and operating procedures to ensure WSU drinking water systems are maintained and operated in a safe and cost effective manner. The most current version of this Program document is located on the WSU Environmental Health and Safety web site under drinking water at:

<http://www.ehs.wsu.edu/ph.asp>.

The Water Board must coordinate with local administrative authorities of non-WSU water systems in all matters concerning cross-connection control (and other drinking water issues). The Water Board must document and describe such coordination, including delineation of responsibilities, in this Program document.

The Water Board must be co-chaired by the Facilities Operations and EH&S Directors. Regional Campus and Research Unit representatives may assign appropriate staff members to assist the board. The Water Board must meet at least annually. The Board must be comprised of the following positions:

Facilities Operations

Director

Director, Maintenance and Utilities Services

Water Distribution Manager

Water System Engineer

Environmental Health and Safety

Director

Public Health Manager

Facility Health and Safety Coordinator

AUTHORITY AND RESPONSIBILITY (cont.)

Housing and Dining Services

Director, Maintenance Services for Campus Life
Industrial Hygienist
Maintenance Coordinator

Capital Planning and Development

Director, Construction Service and Quality Assurance
Project Manager / Professional Engineer

Regional Campuses and Research Units

CAHNRS Business and Personnel Office Director
WSU Spokane – Facilities Operations Manager
WSU Tri-Cities – Environmental Health and Safety Officer
WSU Vancouver - Facilities Operations Manager

The Water Board

- Develops all drinking water programs, policies and procedures for WSU.
- Helps protect drinking water systems and water supply connections.
- Performs and enforces corrective actions.
- Ensures that qualified personnel are provided to develop and implement all applicable programs.
- Develops schedules for performing risk assessments.
- Develops a quality assurance program for backflow prevention assembly testing.
- Develops procedures for responding to water quality and backflow incidents.
- Provides educational programs for consumers about drinking water systems, conservation, cross-connection controls, etc.
- Coordinates with and notifies the Dept. of Health (DOH), local administrative and/or health authorities of any incidents, and documents the incidents.

Facilities Operations

- Operates and maintains all Group A and B water systems in Whitman County (excluding Palouse Conservation Field Station, operated by USDA, maintenance and repairs performed by Facilities Operations).
- Conducts limited monitoring of the drinking water system.

Facilities Operations (cont.)

- Coordinates master planning with the Infrastructure Master Planning Committee.
- Is responsible, along with Capital Planning, Development, and RCRU, for the design, plan and specification review, and construction of additions, modifications and new construction to WSU drinking water systems throughout the state.
- Provides bacteriological and chlorine disinfection water sampling for construction and repairs (or oversees the contractor that performs the sampling), with assistance from EH&S, RCRU, Housing and Dining Services and/or Capital Planning and Development. Facilities Operations or the contractor must provide the results to EH&S.
- Prior to water being used for drinking purposes, Facilities Operations must test all new backflow prevention assemblies in Whitman County and must obtain testing results from outside of Whitman County, and obtain satisfactory bacteriological sample results from repairs or maintenance. Facilities Operations (or the contractor if applicable) must provide bacteriological sample results to EH&S.
- Provides alternative drinking water sources if construction and/or maintenance require disruption of water services on a case by case basis.
- Prepares the annual Cross-connection control summary report and assists EH&S with the development and preparation of other regulatory reports as required.

Facilities Operations representative:

- A certified Water Distribution Manager 3 is in responsible charge of the daily operational activities of the water systems in Whitman County, and their treatment facilities and distribution systems that directly impact water quality and/or quantity of water as required per WAC 246-292.

Environmental Health and Safety (EH&S)

- Conducts bacteriological and chemical sampling for Whitman County water systems (excluding construction and repair samples) required by federal and state regulations, and assists Facilities Operations, Capital Planning and Development, RCRU and other WSU water systems around the state with their sampling responsibilities. Any required sampling for construction and repairs must be performed by the department or contractor making the repair. (Refer to the Construction and Repair section and the Sampling, Monitoring, Repair section below.).
- Investigates concerns regarding drinking water quality and performs sanitary surveys of drinking water systems, including wells, reservoirs, distribution systems and treatment facilities.

- **EH&S (cont.)**
- Reviews plans and specifications for new construction and remodels.
- Evaluates current and new regulations to help ensure WSU remains in compliance and maintains safe and healthy drinking water.
- Acts as the liaison with the Washington State Department of Health, Department of Ecology, local health departments or districts, and the EPA regarding regulatory compliance.
- Assists Facilities Operations with the development and preparation of various regulatory reports as required.

Capital Planning and Development (CPD)

- Coordinates with and receives approval from the Facilities Operations Cross-connection Control Specialist and Water Distribution Manager on water line maintenance and installation, backflow prevention assembly testing, connection of new equipment, etc.
- Prior to water being used for drinking purposes, Capital Planning and Development (CPD) must obtain satisfactory bacteriological sample results and must have Facilities Operations test backflow prevention assemblies from new construction or repairs in Whitman County. Outside of Whitman County, the contractor must test backflow prevention assemblies prior to water being used for drinking purposes. RCRU or the contractor must provide bacteriological sample results to EH&S and the contractor must provide backflow prevention assembly test results, certified Backflow Assembly Testers (BATs) names, certification and telephone numbers to Facilities Operations.

Housing and Dining Services

- Coordinates with and receives approval from the Facilities Operations Cross-connection Control Specialist and Water Distribution Manager on water line maintenance and installation, backflow prevention assembly testing, connection of new equipment, etc.
- Prior to water being used for drinking purposes, Housing and Dining Services must obtain satisfactory bacteriological sample and backflow prevention assembly testing results from new construction or repairs. Housing and Dining Services or the contractor must provide bacteriological sample results to EH&S and backflow prevention assembly testing results to Facilities Operations.
- Conducts maintenance on water lines and contracts with certified BATs to perform backflow prevention assembly testing. Housing and Dining Services must provide the certified BATs names, certification and telephone numbers to Facilities Operations if applicable.

Regional Campuses and Research Units (RCRU)

RCRU operates, maintains, and conducts limited monitoring of the drinking water systems located outside Whitman County, and coordinates water conservation efforts.

RCRU representatives:

- The RCRU Facilities Operations representative coordinates with and receives approval from the Facilities Operations Cross-connection Control Specialist and Water Distribution Manager on water line maintenance and installation, backflow prevention assembly testing, connection of new equipment, etc.
- A certified Water Distribution Manager is in responsible charge of the daily operational activities of the WSU Prosser - IAREC water system, as well as Group B systems at Roza, Othello, Royal Slope and Lind Research Units, and their treatment facilities and distribution systems that directly impact water quality and/or quantity of water as required per WAC 246-292.
- The RCRU CPD representative coordinates master planning with the Infrastructure Master Planning Committee.
- The RCRU Facilities Operations and CPD representatives are responsible for the design and construction of additions and modifications to WSU drinking water systems across the state (in addition to Facilities Operations and CPD), review of plans and specifications for new construction and remodels, and ensuring that additions, modifications, new construction, and remodels are in compliance with all regulations.
- The EH&S representative assists RCRU Facilities Operations with bacteriological and chemical sampling outside of Whitman County (excluding construction and repair samples) as required by federal and state regulations, and assists Facilities Operations and other WSU water systems around the state with their sampling responsibilities. Any required sampling for construction and repairs must be performed by the department or contractor making the repair.
- The RCRU Facilities Operations, CPD and/or EH&S representative must obtain satisfactory bacteriological sample and backflow prevention assembly testing results from new construction or repairs prior to water being used for drinking purposes. RCRU or the contractor must provide bacteriological sample results to EH&S and backflow prevention assembly testing results to Facilities Operations. Certified BATs hired or contracted by RCRU must provide their names, certification and telephone numbers to Facilities Operations.
- The RCRU Facilities Operations or CPD representative must provide alternative drinking water sources if construction and/or maintenance require disruption of water service on a case by case basis.

RCRU representatives (cont.):

- EH&S representative investigates concerns regarding drinking water quality and performs sanitary surveys of drinking water systems, including wells, reservoirs, distribution systems and treatment facilities.
- EH&S representative acts as the liaison with the Washington State Department of Health, Department of Ecology, and the EPA regarding regulatory compliance.
- EH&S representative develops and prepares various regulatory reports as required.

EH&S in Pullman evaluates current and new regulations to help ensure WSU remains in compliance and maintains safe and healthy drinking water.

Water System Users

Any WSU department (including Housing and Dining Services), organization, non-WSU entity, or person that connects equipment, installs piping, or makes changes to water systems must receive prior approval from Facilities Operations Utilities or RCRU. Changes to water systems include tying into any WSU fire hydrant (refer to Fire Hydrant / Water Line Use and Backflow Prevention by Contractors below).

The following are the organizational alignments specifying what WSU entity and / or purveyor is responsible for what systems, facilities, and their appropriate programs:

Facilities Operation in Pullman, WA

Pullman Campus

Central Ferry Research Farm

Palouse Conservation Field Station (operated by USDA)

Smoot Hill Biological Field Study Area

Spillman Farm

Tula Young Hastings Farm

Housing and Dining Services

Pullman Campus departmental facilities

Prosser Irrigated Agriculture Research and Extension Center

Prosser Research and Extension Center

Lind Dry Land Research Unit

Othello Research Unit

Royal Slope Columbia Basin Research Unit #2 (operated by private organization)

Roza Research Unit

Water System Users (cont.)

WSU Tri-Cities Regional Campus

Puyallup Research and Extension Center

Puyallup Research and Extension Center

Mount Vernon Research and Extension Center

Wenatchee Tree Fruit Research and Extension Center

Tree Fruit Research and Extension Center

Columbia View Orchard Research Unit

Colockum Multiple Use Research Unit

Smith Tract

WSU Spokane

Spokane Regional Campus

Intercollegiate Center for Nursing (ICN) - Spokane

SIRTI (non-WSU building but WSU oversees by contracting)

WSU Vancouver

Vancouver Regional Campus

Vancouver Research and Extension Unit

PROGRAM ELEMENTS

Construction, Cross-connection Control, Plan Review and Related Programs

Construction and Repair

Facilities Operations or Capital Planning and Development must submit project reports and construction documents for Group A and B new systems, extension of systems, and improvements to DOH for approval prior to commencing construction with the exception of the activities listed in WAC 246-290-125. Facilities Operations or Capital Planning and Development must provide copies of project reports and construction documents to the Water Distribution Manager and EH&S. Refer also to Plan Review section below.

Any required bacteriological sampling for construction and repairs must be performed by the department or contractor making the repair. Refer to the Sampling, Repair and Emergency Procedures section for more information.

Cross-connection Control

By elimination or control of existing cross-connections between potable and non-potable water systems, plumbing fixtures, and industrial piping systems (including reclaimed and/or reuse water), WSU can maintain safe drinking water supplies. Establishment of a Cross-connection Control Program helps WSU comply with WAC 246-290-490, WAC 246-291-270, WAC 51-56-0600 and Uniform Plumbing Code (UPC) regulations. WSU must adhere to WAC 246-290-490 and WAC 246-291-270 for premises isolation (water supply to buildings) and the UPC and WAC 51-56-0600 for in-premises isolation (internal building water distribution).

Required Personnel and Responsibilities:

Water Distribution Manager:

- Responsible charge of the daily operational activities of the water systems, treatment facilities and distribution systems that directly impact water quality and/or quantity of water as required per WAC 246-292.

Cross-connection Control Specialist (CCS):

- Develops and implements the cross-connection control program (WAC 246-290-490(3) (c) through (g), and (j)).
- Assesses the risk for each potential connection to the water supply, and determines degree of hazard, degree of acceptable risk, and reliability required of the backflow preventer (WAC 246-290-490(4)(a)(i)).
- Determines the kind of backflow preventer required for each connection assessed for risk (WAC 246-290-490(4) (a) (ii)).
- Inspects backflow preventer installations to ensure that protection is provided commensurate with the assessed degree of hazard (WAC 246-290-490(7) (a) (i)).
- Develops cross-connection control procedures related to initial evaluation prior to service being provided to a new connection (WAC 246-290-490(3) (c) (i)).
- Initially evaluates existing connections for proper risk assessment and the application of appropriate backflow preventer (WAC 246-290-490(3) (c) (ii)).
- Periodically reevaluates (on a schedule acceptable to the DOH, or whenever there is a change in use of a premises) all service connections to ensure the application of proper backflow prevention (WAC 246-290-490(3) (c) (iii)).
- Must inspect air gaps installed in lieu of approved backflow prevention assemblies, or must inspect backflow prevention assemblies for correct installation and approval status (WAC 246-290-490(7)(a)(ii)).

Backflow Assembly Tester (BAT):

- Tests approved backflow assemblies for proper operation (WAC 246-290-490(7) (a) (iii)).
- Inspects and/or tests approved air gaps and approved backflow assemblies; 1) at the time of installation; 2) annually or more frequently thereafter, 3) whenever there is a backflow incident, and/or; 4) whenever an assembly is repaired, reinstalled or relocated, or an air gap is re-plumbed (WAC 246-290-490(7)(b)).

Water Board:

- Per WAC 246-290-490(3)(a), (b), (h) and (i), develops this Program document that establishes legal authority to implement a cross-connection control program, describes operating policies, develops and implement procedures for responding to backflow incidents and educates consumers on cross-connection control.

There are additional duties of CCS's and BAT's associated with backflow prevention devices, which are a lower priority and are not included in this document.

NOTE: It is important that BATs report unapproved assemblies or assembly installations, uncovered during annual inspections or incident evaluations to the CCS. In general, all inspection and testing reports generated by BATs should be reviewed by the CCS and the Water Distribution Manager.

Using the above state certified Cross-connection Control Specialists and Backflow Assembly Testers (either associated with the Pullman campus, or using their own certified maintenance personnel, or hired as independent contractors), each regional campus, research station, etc. is ultimately responsible for ensuring that their own water systems or water supply connections to facilities for cross-connections and backflow prevention assemblies are maintained, inspected, and tested, and that records of all maintenance, inspections, and testing are retained.

Definitions:

All definitions, hazards, equipment, procedures, and installation practices must either follow WAC 246-290 and / or the most recent edition of the *Cross-connection Control Manual - Accepted Procedure and Practice*.

All new backflow prevention assembly models that are installed on WSU property must be used either from the current approved backflow prevention assemblies list developed by the University of Southern California Foundation for Cross-connection Control and Hydraulic Research or must be listed or approved by other nationally recognized testing agencies (such as IAPMO, ANSI, or UL) acceptable to the local administrative authority. Such models are considered approved by the Department of Health (DOH). The current approved assemblies list is available from DOH upon request.

Approved air gap means a physical separation between the free-flowing end of a potable water supply pipeline and the overflow rim of an open or non-pressurized receiving vessel. To be an air gap approved by DOH, the separation must be at least:

- Twice the diameter of the supply piping measured vertically from the overflow rim of the receiving vessel, and in no case be less than one inch, when unaffected by vertical surfaces (sidewalls); and:

- Three times the diameter of the supply piping, if the horizontal distance between the supply pipe and a vertical surface (sidewall) is less than or equal to three times the diameter of the supply pipe, or if the horizontal distance between the supply pipe and intersecting vertical surfaces (sidewalls) is less than or equal to four times the diameter of the supply pipe and in no case less than one and one-half inches.

Approved atmospheric vacuum breaker means an AVB of a make, model, and size that is approved by DOH. AVBs that appear on the current approved backflow prevention assemblies list developed by the University of Southern California Foundation for Cross-connection Control and Hydraulic Research or that are listed or approved by other nationally recognized testing agencies (such as IAPMO, ANSI, or UL) acceptable to the local administrative authority are considered approved by DOH.

Approved backflow preventer means an approved air gap, an approved backflow prevention assembly, or an approved AVB. The terms "approved backflow preventer," "approved air gap," or "approved backflow prevention assembly" refer only to those approved backflow preventers relied upon by the purveyor for the protection of the public water system. The requirements of WAC 246-290-490 do not apply to backflow preventers installed for other purposes.

Approved backflow prevention assembly means an RPBA, RPDA, DCVA, DCDA, PVBA, or SVBA of make, model, and size that is approved by DOH. Assemblies that appear on the current approved backflow prevention assemblies list developed by the University of Southern California Foundation for Cross-connection Control and Hydraulic Research or other entity acceptable to DOH are considered approved by DOH.

Backflow means the undesirable reversal of flow of water or other substances through a cross-connection into the public water system or consumer's potable water system.

Backflow assembly tester means a person holding a valid BAT certificate issued in accordance with WAC 246-292.

Backpressure means a pressure (caused by a pump, elevated tank or piping, boiler, or other means) on the consumer's side of the service connection that is greater than the pressure provided by the public water system and which may cause backflow.

Backsiphonage means backflow due to a reduction in system pressure in the purveyor's distribution system and/or consumer's water system.

Cross-connection means any actual or potential physical connection between a public water system or the consumer's water system and any source of nonpotable liquid, solid, or gas that could contaminate the potable water supply by backflow.

Cross-connection control program means the administrative and technical procedures the purveyor implements to protect the public water system from contamination via cross-connections as required in WAC 246-290-490.

Cross-connection control specialist means a person holding a valid CCS certificate issued in accordance with WAC 246-292.

Cross-connection control summary report means the annual report that describes the status of the purveyor's cross-connection control program.

High health cross-connection hazard means a cross-connection which could impair the quality of potable water and create an actual public health hazard through poisoning or spread of disease by sewage, industrial liquids or waste.

In-premises protection means a method of protecting the health of WSU consumers served by the WSU building's potable water system, located within the WSU building by the installation of an approved air gap or backflow prevention assembly at the point of hazard, which is generally a plumbing fixture.

Local administrative authority means the local official, board, department, or agency authorized to administer and enforce the provisions of the Uniform Plumbing Code as adopted under chapter 19.27 RCW. The local administrative authority for all WSU water systems throughout the state is the WSU Water Board. For WSU premises or buildings that are served by a non-WSU water system, the local administrative authority is the water system purveyor that serves the WSU premises or buildings

Low health cross-connection hazard means a cross-connection that could cause an impairment of the quality of potable water to a degree that does not create a hazard to the public health, but does adversely and unreasonably affect the aesthetic qualities of such potable waters for domestic use.

Premises isolation means a method of protecting WSU public water systems by installation of approved air gaps or approved backflow prevention assemblies at or near the service connection or alternative location acceptable to the purveyor to isolate the building water system from the purveyor's distribution system.

Purveyor means a WSU department that operates a WSU public water system. Purveyor also means the authorized agents of WSU. For non-WSU water systems, the purveyor is the local administrative authority that operates the non-WSU water system.

Inspections and Surveys:

All responsible entities must have a certified Cross-connection Control Specialist inspect and survey their Group A water system facilities on an annual basis or after a backflow incident per WAC 246-290-490(7)(b). For Group B water systems and WSU facilities on non-WSU public water systems, all responsible entities must have a certified Cross-connection Control Specialist inspect and survey them as determined by the Water Board or after a backflow incident. Facilities where cross-connections are found must be prioritized and funded based on risk. The responsible entity must provide access to the results of their inspections and surveys to Facilities Operations and EH&S for performing assessments for Minor Capital Safety funding. When an existing cross-connection poses a high health or system hazard, the purveyor must shut off water service to the premises, equipment, etc. until the cross-connection has been eliminated or controlled by the installation of a proper backflow prevention assembly. The Cross-connection Control Specialist and EH&S must be notified as soon as possible whenever a high health cross-connection hazard is found and/or the water has been shut off. Existing cross-connections that do not pose a high health hazard will be eliminated or controlled by the installation of a proper backflow prevention assembly as funding

and time allows. Non-University entities, which own buildings or equipment serviced by a WSU water system, will be required to install a service meter and premises isolation or in-premises isolation (backflow prevention assemblies) as determined by the WSU Cross Connection Control Specialist.

Capital Planning and Development and Facilities Operations must inspect all new or remodeled construction involving water systems.

All backflow prevention assemblies and air gaps must be tested and/or inspected annually by a Washington State Certified Backflow Prevention Assembly Tester using Washington State approved field testing procedures. All new backflow prevention assemblies that have been installed must be tested prior to being placed into service. The Washington State Certified Backflow Prevention Assembly Tester must provide the results of testing to Facilities Operations in a timely manner.

When annual testing and documentation of backflow prevention assemblies show consistent annual failures, semi-annual tests to verify the assemblies meet design standards must be performed.

All facilities used by non-WSU organizations that are serviced by a WSU water system must comply with all elements of this program.

Fire Hydrant / Water Line Use and Backflow Prevention by Contractors:

Prior to contractors tying into fire hydrants or other water lines and using any water, they must install an approved and tested backflow prevention assembly. The contractor has two options: 1) install their own backflow prevention assembly and have a Facilities Operations Backflow Assembly Tester (BAT) inspect the assembly or; 2) check out an approved and tested assembly from Facilities Operations. In either case, the BAT must date, initial, and attach a green "Quality Control" tag must be attached to the assembly. The tag is to be displayed such that it is readily visible to interested authorities. If the contractor checked out an assembly from Facilities Operations, they must return the backflow prevention assembly in working order to Facilities Operations when they are done using the fire hydrant / water line. Failure to return the backflow prevention assembly, or if the assembly is not in working order, will result in the contractor being charged for it.

Signage of Non-Potable Water:

As required by the latest edition of the Uniform Plumbing Code (UPC), all faucets, hose bibs, etc., that supply non-potable water must have signs posted adjacent to them that state:

**CAUTION: NONPOTABLE WATER
DO NOT DRINK**

Per WAC 296-62-130(3), all emergency showers and eyewashes using non-potable water must have signs posted adjacent to them that state water is non-potable.

Backflow Prevention Assembly Recordkeeping:

Facilities Operations must keep complete records on all dates of installations, inspections and results, recommended protection, locations of backflow prevention assemblies and air gaps in systems, testing and maintenance reports. Housing and Dining Services must maintain documentation on their respective facilities and forward a copy of such records to Facilities Operations after the completion of the certification inspections or on an annual basis, whichever ever occurs first. Regional campuses and research stations must maintain documentation on their respective campuses and research stations and forward a copy of such records to Facilities Operations after the completion of the certification inspections or on an annual basis, whichever ever occurs first. Backflow assembly test kits must be annually verified and documented for accuracy to plus or minus 0.2 full scales. Records must be made available to EH & S or the Washington State Department of Health upon request.

Risk Assessments and Prioritizing Cross-connection Control Improvements:

In order to address the elimination of cross-connections in WSU potable water systems, a prioritization of projects is required. This is necessary due to the number of cross-connections discovered each year and the amount of funding available.

An assessment of each cross-connection discovered must be performed in order to prioritize and establish funding for the project. Environmental Health and Safety and Facilities Operations must perform assessments of candidates for funding jointly.

The CCS performs the risk assessment based on WAC 246-290-490(4). Using Tables 8 and 9 from the WAC along with the most recent edition of the Cross-connection Control Manual - Accepted Procedure and Practice, the CCS must determine the degree of hazard, probability, and source of contamination associated with the cross-connection, and the number of people it could potentially affect. The following describes the criteria used to establish priorities for correction of cross-connections based on the premises isolation, in-premises isolation, degree of hazard, and number of people potentially affected:

Risk Assessment Hierarchy (1 being the highest priority, 5 being the lowest):

1. Premises Isolation of buildings with the greatest number of high health cross-connection hazards takes precedence over Premises Isolation of buildings with fewer high health cross-connection hazards. *
2. In-premises Isolation of buildings with the greatest number of high health cross-connection hazards takes precedence over In-premises Isolation of buildings with fewer high health cross-connection hazards. *
3. In-premises Isolation of buildings with the greatest number of occupants with the same amount of high health cross-connection hazards as another building takes precedence over the other building with fewer building occupants. *
4. Premises Isolation of buildings with the greatest number of low health cross-connection hazards takes precedence over Premises Isolation of buildings with fewer low health cross-connection hazards. *
5. In-premises Isolation of buildings with the greatest number of occupants with the same amount of low health cross-connection hazards as another building takes precedence over the other building with fewer building occupants. *

* In cases where two different types of cross-connection hazards exist, but both require the same type of backflow prevention assembly, the hazard that is more likely to result in

contaminated water must be prioritized higher. Example: RPBA's are required for cross-connections involving: a) chemical feed equipment plumbed directly into potable water lines, and; b) potable water that is not protected from laboratory water, where the potential for equipment to be plumbed directly into the laboratory water exists. Therefore, the chemical feed equipment would be prioritized higher, since it is plumbed into a potable water line and is pressurized, than a laboratory water line that only has the potential for equipment to be connected to it.

In the Manual, Table 4-1 lists each type of backflow prevention assembly with the level of protection it provides. Tables 4-2, 4-3 and 4-4 describe premises, facilities and fixtures, equipment and areas requiring backflow prevention with the appropriate assembly listed. Therefore, it must be assumed that if an air gap is required, it is a higher hazard than if a Reduced Pressure Backflow Assembly (RPBA) is required, etc.

Plan Review and Design Standards

All plan reviews and design standards for new or remodeled construction involving water systems must be submitted to and reviewed by Facilities Operations, the Certified Cross-connection Control Specialist, the certified Water Distribution Manager, EH&S, Housing and Dining Services (if applicable), and RCRU (if applicable). All plans and work prepared must meet Group A and B water system engineering requirements and design standards, as well as the local administrative authority if applicable. Plans must be prepared under the direction of a professional engineer licensed in Washington.

Water System Plans

The Pullman campus system is required to submit a revised water system plan every six (6) years to DOH, and small water system plans are also required for small Group A water systems (Tula Young Hastings Farm and WSU Prosser). Facilities Operations must be responsible for Whitman County water system plans and RCRU is responsible for the WSU Prosser plan.

Well Construction, Decommissioning, Maintenance, Source Approval and Interties

Facilities Operations and RCRU, with assistance from EH&S, must be responsible for obtaining source water approval, interties with other water systems, water rights, and the construction and decommissioning of all WSU wells, including agricultural, municipal, industrial, domestic or commercial wells.

Water System Modifications or Additions

Contact the Director of Architectural and Engineering Services and the Water Distribution Manager, both at Facilities Operations, regarding all modifications or additions to WSU drinking water systems.

Facilities Operations recommends that WSU Pullman departments submit requests for water system modifications or additions through the myFacilities website. See BPPM 80.45 at <http://www.wsu.edu/%7Eforms/PDF/BPPM/80-45.pdf>.

WSU Pullman departments unable to access or utilize the myFacilities website may submit requests for water system modifications or additions to Facilities Operations; telephone 335-9007.

Non-Pullman units are to contact Facilities Operations to submit requests for water system modifications or additions; telephone 335-9007.

All University departments, organizations, persons, or non-University entities must receive approval from Facilities Operations **before**:

- Connections to water lines. All new water system point of use connections must have a service meter and premises isolation or in-premises isolation (backflow prevention assemblies) as determined by the WSU Cross Connection Control Specialist. Additionally, Non-University entities will be required to install a service meter and premises isolation or in-premises isolation (backflow prevention assemblies) as determined by the WSU Cross Connection Control Specialist, and reimburses the University for water used. Facilities Operations Water Distribution Manager will only turn on the system water to new services after receiving certification of backflow prevention testing, and verifying the installation of appropriate metering and backflow prevention assemblies.
- Connecting equipment to water lines,
- Repairing or maintaining piping,
- Drilling a well, or
- Making any changes to water systems.

Sampling, Monitoring, Repairs, Emergency Procedures, Reporting and Recordkeeping Requirements

Sampling, Monitoring, Repairs and Emergency Procedures

Sampling and Monitoring:

EH&S, Facilities Operations and RCRU must be responsible for all bacteriological and chemical sampling (excluding construction and repair sampling) with assistance from the Water Distribution Manager on daily monitoring. For installation of new lines and systems, and repairs, Facilities Operations, Housing and Dining Services, RCRU and/or Capital Planning and Development is responsible for ensuring that chlorination meets the most recent AWWA standards, and that adequate bacteriological sampling results are obtained. All bacteriological

sampling results from construction or repair projects must be submitted to EH&S and RCRU prior to use of the water for drinking purposes. See below for bacteriological sampling procedures.

Repairs:

Required bacteriological sampling for repairs must be performed by the department making the repair. Depending upon the type of repair, the following procedures must be followed:

Repair where water pressure not lost:

In these cases (such as a hole in a line) where only a patch is needed, the patch and hole must be properly disinfected first; however bacteriological sampling is not required.

Repair where water pressure was lost:

In these cases (such as a broken line) proper disinfection of lines per the most current AWWA standards and bacteriological sampling must be required. Water service to buildings can be resumed prior to obtaining satisfactory bacteriological sampling results.

NSF-approved temporary hoses may also be used when service to a building is needed as soon as possible. The temporary hose must be properly disinfected before use. After repairs have been completed, the repaired section of waterline must be disinfected according to the most current AWWA standards, flushed and a satisfactory bacteriological sample results obtained prior to placing the line back into service.

In cases where unsatisfactory sample results are obtained, the disinfection procedure, flushing and bacteriological sampling must be repeated until satisfactory results are obtained.

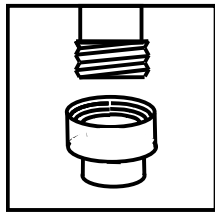
Bacteriological Sampling Procedures:

Samples must be delivered ASAP, but no later than 24 hours after being collected. EH&S or the laboratory can provide sample bottles and forms. Results are available approximately 24 hours after the laboratory has set up the sample.

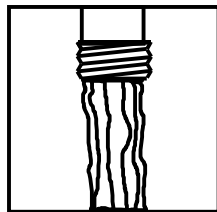
- Select a faucet or hose bib that is furthest from the point where chlorine was added to the line for disinfection.
- Remove any attachment from the faucet, including aerators, screens, washers, hose, and water filters. Once all attachments are removed, dry off the inside of the tap with paper towels.
- Disinfect the tap using a lighter, matches or bleach.
- Ensure a steady stream of cold water only has been running for at least five minutes. Before collecting the sample, turn the water down to a thin stream (about the width of a pencil) and let the water run one minute.
- With a black permanent marker fill out the sample bottle label with building name and tap location, room #, date and time.
- Remove the plastic seal on the cap.

- To avoid contamination while taking the sample, hold the bottle near the bottom with one hand, hold the top of the cap with the other and then unscrew the cap. Do not: invert the cap, set the cap down, or touch any part of the cap that touches the bottle, or let anything touch the rim or inside of the cap. Do not touch the rim or inside of the bottle.
- There may be some liquid or powder in the sample bottle to neutralize the chlorine in the sample. Do not rinse it out.
- Hold the bottle under the constant stream of water, being careful not to touch the tap with the bottle.

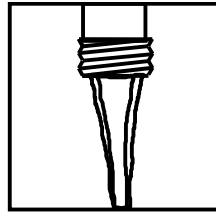
Bacteriological Sampling Procedures (cont.):



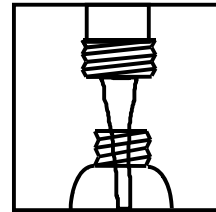
Remove Attachments



Run 5 Minutes



Reduce Flow 1 Minute



Fill Bottle to Line

- Fill the bottle to the neck or indicated fill line, but do not dump any water out or allow the bottle to overflow.
- Remove the bottle from the water flow and replace the cap.
- Turn off the water and replace any attachments.
- If you feel the sample may have been contaminated, resample with a new bottle.
- If the sample(s) will not be delivered to the lab for more than three hours, store sample bottle(s) in a refrigerator or in a cooler with blue ice.

During normal business hours Monday through Thursday, samples with the completed forms must be delivered to:

Anatek Labs
 1282 Alturas Drive
 Moscow, ID 83483
 Phone: 800-943-2839

In Moscow turn right on S Jackson St. (US 95 S or ID 8E)
 Turn right onto Alturas Pkwy.
 Turn left on Alturas Dr.
 Anatek Labs is on the left.

On Friday, or after hours and weekends, samples and forms must be delivered to:
Whitman Hospital and Medical Center
1200 W Almota Rd.
Colfax, WA 99111
Phone: 509-397-3435

Emergency Procedures:

Departments must follow their emergency response plans and procedures.

Reporting, Public Notification and Recordkeeping

EH&S, Facilities Operations, Housing and Dining Services, Capital Planning and Development and RCRU must be responsible for all regulatory reporting and recordkeeping (excluding cross-connection control), and public notification in cases of water quality violations with assistance from the Water Distribution Manager. Facilities Operations, EH&S and RCRU is responsible for all cross-connection control recordkeeping.

Sanitary Surveys, Vulnerability Assessments, Emergency Response Plans and Wellhead Protection

Sanitary Surveys

A Qualified Sanitary Surveyor is required to perform Group A water system surveys, and EH&S and RCRU must be responsible for coordinating the surveys. Surveys are required every five (5) years.

Vulnerability Assessments and Emergency Response Plans

EH&S, Facilities Operations, Housing and Dining Services, RCRU and Public Safety must be responsible for vulnerability assessments and emergency response plans for their respective systems and facilities.

Wellhead Protection and Sanitary Control Areas

Facilities Operations, RCRU and EH&S must be responsible for maintaining wellhead protection and sanitary control areas around wellheads for Group A water systems responsible for maintaining wellhead. Group B water systems are not required to have a wellhead protection program, but are required to maintain sanitary control areas (100 foot radius) around wellheads. Facilities Operations and RCRU must ensure the wellhead protection program, when necessary, is incorporated into Water System Plans every six (6) years. EH&S and RCRU must ensure that the contaminant inventory list required for wellhead protection be updated every two (2) years with appropriate notification to regulatory and owner agencies.

Operating Permits and Water Works Operator Certification

All Group A water systems are required to have operating permits. In addition, the Pullman campus water system is required to have at least one certified Water Distribution Manager 3 (or 4) in responsible charge of the daily operational activities of the system. Smaller Group A water systems are required to have at least one certified Water Distribution Specialist.

Water Use Efficiency Rule and Water Conservation

In accordance with WAC 246-290, WSU must meet all Water Use Efficiency Rule requirements. These requirements, which include water conservation goals, are in WSU's most current Water System Plan.

Two representatives from WSU must serve on the Palouse Basin Aquifer Committee to promote water conservation at WSU facilities in Whitman County. For all other WSU water systems and facilities, the RCRU must promote water conservation at those locations.