

King County Water District No. 90
Cross-Connection Control Program
Per WAC 246-290-490

I. Definitions

AG - air gap; a physical separation between the free-flowing end of potable water supply and the overflow rim of the receiving vessel e.g., a sink faucet. The air gap must be at least two times the diameter of the supply pipe, and not less than one-inch.

AVB - atmospheric vacuum breaker; usually resembles a 90-degree elbow with a hood on its top to allow air to enter the water system if a siphon attempts to form. Inside this elbow is a poppet valve that is held "up" by the water pressure found in the system, closing the air entrance to the device. If the pressure in the "upstream side" is reduced to atmospheric pressure or below, the poppet valve drops and allows air to enter the system, breaking the siphon. An AVB is not a testable device and is therefore not allowed within the District.

Backflow Assembly Tester (BAT) - a person who has proven ability in field, testing backflow prevention assemblies and must hold a valid Washington State BAT certificate issued under Chapter 246-292 WAC.

Backflow – the undesirable reversal of flow of water, or other substances, entering the public water system or customer's water system through a cross-connection.

Backflow Prevention Assemblies – approved, testable, mechanical assemblies used to protect potable water supply from contamination or pollution due to backflow incidents.

- DCDA - double check detector assembly; a double check valve assembly (DCVA), equipped with a smaller bypass line, that includes a meter and a second DCVA, for the purpose of detecting small amounts of water leakage or unauthorized use. DCDA's are designed to protect against both backsiphonage and backpressure in low hazard conditions.
- DCVA - double check valve assembly; consists of two independently-operating check valves, loaded to close position by springs or weights

that are installed between two tightly-closing resilient seated shut off valves with four properly located test cocks for testing. DCVA's are designed to protect against both backsiphonage and backpressure in low hazard conditions.

- PVBA – pressure vacuum breaker backsiphonage prevention assembly; an assembly containing an independently operating internally loaded check valve and an independently operating loaded air inlet valve located on the discharge side of the check valve. The assembly shall include properly located test cocks for testing and tightly closing resilient seated shut off valves at each end of the assembly. PVBA's are designed to protect under backsiphonage conditions only.
- RPBA - reduced pressure backflow assembly; an assembly containing two approved check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve. The unit shall include properly located test cocks for testing and two tightly closing resilient-seated shut off valves at each end of the assembly. RPBA's are designed to protect against both backsiphonage and backpressure in high hazard conditions. RPBA's are primarily used on fire sprinkler systems.
- RPDA - reduced pressure detection assembly; an approved assembly consisting of two approved reduced-pressure backflow assemblies, set in parallel, equipped with a meter on the bypass line for the purpose of detecting small amounts of water leakage or unauthorized use. This type of assembly is most commonly used on fire line water services in place of an approved RPBA. RPDA's are designed to protect against both backsiphonage and backpressure in high hazard conditions.
- SVBA – spill resistant pressure vacuum breaker backsiphonage prevention assembly; an assembly containing an independently operating internally loaded check valve and an independently operating loaded air inlet valve located on the discharge side of the check valve. The assembly shall include properly located test cocks for testing, a properly located bleed/vent port, and tightly closing resilient

seated shut off valves at each end of the assembly. SVBA's are designed to protect under backsiphonage conditions only.

Backpressure- pressure opposed to the desired flow of fluid. Backpressure is caused by a source of pressure that exceeds supply pressure. The higher pressure literally pushes the fluid back into the water system.

Backsiphonage - backflow due to a reduction in system pressure. If the pressure in a water system drops to a vacuum, water will flow to the point of the lowest pressure. For backsiphonage to occur there must also be an opening to atmosphere. Examples include water line breaks and high use demands such as firefighting.

Cross-Connection - any actual or potential physical connection between a public water system, or the customer's water system, and any source of non-potable contaminant that could contaminate the potable water supply by backflow.

Cross-Connection Control Program (CCP) - administrative and technical procedures the District implements to protect the public water system from contamination via cross-connections.

Cross-Connection Control Specialist (CCS) - a person trained to administer a CCP program. The CCS must be familiar with all elements of the District's CCP program and must hold a valid Washington State CCS certificate issued under Chapter 246-292 WAC.

Degree of Hazard - assessment of the level of risk of possible contaminants on or available to premises that may create a health hazard to the distribution system. Degree of hazard includes low, high, and severe hazard categories.

- High Health Hazard - high health hazards include contaminants that could pose an immediate health concern if introduced into the potable water supply, due to the risk of disease, illness, or injury.
- High Health Hazard Cross-Connection - service connections to premises posing a high health hazard. High health hazards include, but are not limited to the following:
 - a. Agricultural (farms and dairies)
 - b. Beverage bottling plants
 - c. Car washes

- d. Chemical plants
 - e. Commercial laundries and dry cleaners
 - f. Premises where both reclaimed water and potable water are provided
 - g. Fire Protection Systems with chemical addition
 - h. Film processing facilities
 - i. Food processing plants
 - j. Hospitals, medical centers, nursing homes, veterinary clinics, medical and dental clinics and blood plasma centers
 - k. Premises with separate irrigation systems using the purveyor's water supply and with chemical addition. For example, parks, playgrounds, golf courses, cemeteries, estates, etc.
 - l. Laboratories
 - m. Metal plating industries
 - n. Mortuaries
 - o. Petroleum processing or storage plants
 - p. Piers and docks
 - q. Survey access denied or restricted
 - r. Wastewater lift stations and pumping stations
 - s. Premises with an unapproved auxiliary water supply interconnected with the potable water supply.
- Low Health Hazard - low health hazard includes a contaminant that would not impose an immediate health concern, but could result in the water in the District's distribution system not meeting secondary drinking water standards.
 - Low Health Hazard Cross-Connection - typically residential service connections with lower risk cross-connection. Low health hazard rely on backflow protection provided at the point of hazard i.e., (in-premises) protection (WAC 51-56-0600) by means of a DCVA, DCDA, PVBA, SVBA, & AVB. Low health hazard cross-connections include, but not limited to the following:
 - a. Irrigations systems
 - b. Swimming pools or spas
 - c. Ponds
 - d. Boilers
 - e. Fire protection systems, without chemical additions (non-flow-through style)
 - Severe Health Hazard - high health hazard may also be considered severe if the contaminants pose a health risk of death, spread of disease or illness.

- Severe Health Hazard Cross-Connection - service connections to premises posing a severe health cross-connections, requiring: a) approved air gap is installed for premises isolation; or b) approved RPBA or RPDA is installed for premises isolation in combination with an in-plant approved air gap. Severe health hazards include, but are not limited to the following:
 - a. Radioactive material processing plants
 - b. Nuclear reactors
 - c. Wastewater treatment plants

In-premises Protection - method of protecting the health of customers served by the customer's potable water system, located within the property lines of the customer's premises by the installation of an approved air gap or approved backflow prevention assembly at the point of hazard, which is generally a plumbing fixture (WAC 246-290-010).

Premises Isolation - method of protecting a public water system by installation of approved air gaps or approved backflow prevention assemblies at or near the service connection or alternative location acceptable to the District to isolate the customer's water system from the District's distribution system (WAC 246-290-010).

II. Purpose

King County Water District No. 90 (The District) has developed a Cross-Connection Control Program (CCP) under the requirements for Group A Water Systems (WAC 246-290-010). The purpose of CCP is to protect the District's public water system by ensuring that cross-connections between the distribution system and a customer's water system are eliminated or controlled by the installation of an approved backflow preventer commensurate with the degree of hazard. This can be accomplished by implementation of a cross-connection program that relies on:

- A. Premises isolation - the installation of air gaps or approved backflow assemblies at or near the customer's service connection for service connections posing a cross-connection hazard. Premises isolation is the District's backflow prevention standard unless an in-premises application is approved by the District.
- B. In-premises protection - the installation of air gaps or approved backflow assemblies at or near the point of hazard, within the customer's property lines (i.e. premises).

III. Authority

- A. The District has established standards and procedures governing the application, installation, approval, testing and recordkeeping of the backflow prevention assemblies and other related tasks, in accordance with WAC 246-290-490 and utilizing the most recently published editions of the following resources:
- Manual of Cross-Connection Control published by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California (USC Manual).
 - Cross-Connection Control Manual, (Yellow Manual) Accepted Procedure and Practice published by the Pacific Northwest Section of the American Water Works Association (PNWS-AWWA Manual).
- B. The General Manager or designee is empowered to establish more stringent requirements than those listed in regulations, guidance materials, or procedures when deemed necessary to reduce the risk of contamination of the District's distribution system.
- C. The District may implement the Cross-Connection Control Program, or any portion thereof, directly or by means of a contract with another agency or party acceptable to the WDOH.

IV. Responsibilities

- A. General Responsibilities:
- The WDOH has required purveyors of public drinking water systems to develop and implement an acceptable program of Cross-Connection Control.
 - The District or its designated representative shall prevent the contamination of the water distribution system by inspecting cross-connections, providing guidance for new installations and existing connections, maintaining records on backflow prevention devices, and responding to customer inquiries to meet the requirements of the WDOH State regulations regarding cross-connection control.
 - The District shall ensure that good engineering and public health protection practices are used in the development and implementation of cross-connection control programs.

- The District's responsibility for cross-connection control shall begin at the water supply source, includes all the public water treatment, storage, distribution facilities, and end at the point of delivery to the customer's water system (which begins at the downstream end of the service connection or water meter on the public right-of-way or utility-held easement).
- The District shall not be liable for damages, nor will allowances be made for loss of production, sales, or service, or other consequential damages arising from the implementation of any of the measures required by and/or contained in this policy.

B. Eliminating Cross-Connections:

- The District will endeavor to eliminate "whenever possible" (i.e., removal of the hazard) any installation, maintenance, or operation of a private plumbing system or its components, which in the opinion of the District, will endanger the water quality of the District's distribution system.

C. Controlling Cross-Connections:

- If actual and potential cross-connections cannot be eliminated, approved backflow prevention commensurate with the degree of hazard is required to be installed.
- The backflow prevention required must meet the mandatory premises isolation requirements of the Water District 90 Standard Details #20-1, #20-2, #24, and #32 (Exhibit A, B, C, & D).
 - a. Severe Hazard - severe cross-connection hazard requires an AG, an RPBA with an AG, or RPDA with an AG.
 - b. High Hazard - high health cross-connection hazard requires an AG, RPBA, or RPDA approved backflow prevention assemblies. Requires premises isolation.
 - c. Low Hazard - low cross-connection hazard requires an AG, RPBA, RPDA, DCVA, or DCDA approved backflow prevention assemblies. Requires premises or in-premises isolation. Exceptions will be on a case-by-case basis.
- Where mandatory premises isolation is not applicable, backflow prevention commensurate with the assigned degree of hazard must be installed.

- The District does not accept AVB, SVBA or PVBA cross connection prevention assemblies.

D. Water Customer Responsibilities:

- The District is not responsible for eliminating or controlling cross-connections within the customer's water system. The responsibility for cross-connection control within the customer's water system, i.e., within the property lines of the customer's premises, lies with the authority having jurisdiction, (i.e., City of Renton, King County or Washington State Building Code Council) (RCW 19.27).
- The water customer shall be responsible for identifying and eliminating cross-connections or controlling them through the installation, regular testing, and maintenance of approved backflow prevention assemblies.
- The water customer shall be responsible for providing the necessary information, scheduling, and providing access for inspection/survey (as required) to allow a determination of cross-connection potential and the necessary control methods.
- The water customer is responsible for notifying the District of any assembly that the customer believes is no longer required.
- The water customer is responsible for all costs associated with the inspection, testing, repair, and replacement of backflow prevention assemblies.

V. **Cross-Connection Control Program**

1. **ELEMENT 1 – Adopt a local Resolution**

Resolution # 995 adopted on November 17, 2015, establishes the District's legal authority to implement a Cross-Connection Control Program (CCP); and describes the operating policies and technical provisions of the District's CCP; and the corrective actions used to ensure that customers comply with the District's cross-connection control requirements.

2. **ELEMENT 2 – Procedures and schedules for evaluation of new and existing service connections to assess the degree of hazard.**

A. Evaluating New Connections:

- The District shall review applications for new services and for any change of use, such as enlarging of existing services for potential cross-connections.
- The Water Availability Certificate Application, plot plan, mechanical plan and plumbing fixture schedule, etc., if applicable/available, should be evaluated for actual and potential cross-connections.
- Any assemblies within the premises that are accepted by the District in-lieu-of premises isolation must be clearly identified on the plans.
- Include with plan approval:
 - a. The District's installation standards for assemblies
 - b. Statement of direction that all backflow prevention assemblies installed must be Washington State approved and installed on private property
- Identify type of contaminant and assign degree of hazard using the "Yellow Manual" for guidance and follow the general procedures for assessing water quality risks.
- As the project is completed, the District representative shall complete a site survey (See Survey Guidelines) of the premises.
 - a. Inform the customer of any changes for compliance with District requirements.
 - i. Send the customer a copy of the Survey Report and/or letter.
- Water service is not allowed until the customer complies with all of the cross-connection control requirements and the project is not final until the District has received satisfactory tests.
 - a. Enter backflow prevention and survey information into the backflow database (See Record keeping).
- Backflow protection may also be required of customers with complex plumbing arrangements, plumbing that is subject to frequent changes, a history of cross-connections, or where cross-connections are unavoidable.
- Any situations, items, or concerns not addressed in these procedures shall refer to the "Yellow Manual" for guidance.

B. Evaluating Existing Connections:

- The District shall conduct a site survey to assess existing water services periodically for potential cross-connections. See Field Survey Form Exhibit J.
 - a. The District focus will be on industrial, commercial and potential high hazard cross-connections before low hazard connections.
 - b. Existing connections with a “change of use” will be re-evaluated as if they are new connections.
- Assessment of the degree of hazard and the type of contaminant will be completed by utilizing survey guidelines (see Survey Guidelines) and by using the “Yellow Manual” for guidance, following the general procedures for assessing water cross-connections.
- When High Hazard is determined as the degree of hazard, 30 days is allowed for compliance unless it is an immediate hazard per the Operations Manager or designee.
- When Low Hazards are determined by the degree of hazard assessments, backflow protection must be installed within 12 months.

C. Survey Schedules:

- For existing District customers with documented backflow prevention assemblies in the District's backflow database, the survey schedule is as follows:
 - a. Review surveys of severe hazards completed annually.
 - b. Review surveys of high hazards completed within three years.
 - c. Review surveys of low hazard completed within five years.
- For existing District customers with no known backflow prevention assemblies and no known potential cross-connection conditions, the survey schedule is as follows:
 - a. The District will endeavor to survey each existing customer with an initial survey every 20 years.
 - b. After the initial survey, periodic re-evaluations will take place every 25 years.

- For existing District customers with no known backflow prevention assemblies with a discovery or suspicion of a cross connection, the survey schedule is as follows:
 - a. Initial surveys of severe hazards completed within 7 days after discovery.
 - b. Initial surveys of high hazards completed within 30 days after discovery.
 - c. Initial surveys of low hazards completed within 90 days after discovery.
- An immediate special site survey may be required in situations such as a response to a water quality complaint or upon notification of a change in use.
- In addition to site surveys, the District staff is continually surveying for new cross-connections by:
 - a. Analysis of spring and summer consumption rates.
 - b. Review of locates or customer service calls alerting District staff to changing conditions.
 - c. Site survey by District Staff during the normal course of business.
- A list of all existing facilities shall be created and updated in the backflow database, which lists facilities by the degree of hazard and customer type. (See Recordkeeping)
- The District will notify the customer of survey findings when compliance issues are identified.
 - a. District Staff will inform the customer of any required changes for compliance with District requirements.
 - i. Send the customer a copy of the Survey Report and/or letter.
- If any situations, items, or concerns are not addressed in these procedures, refer to the “Yellow Manual” for guidance.

D. Survey Guidelines:

- Beginning with the highest priorities on the list, obtain all information possible regarding the customers, including:
 - a. Name, address, phone number, and contact person
 - b. Map of piping feeding premises, number of meters
 - c. List common or suspected cross-connections

E. Complete a Water Use Survey

- Start the survey by locating where the water enters the building and follow each piping branch to the end. Locate water-using equipment/devices and get a working knowledge of their operation.
 - a. Identify any potential or actual cross-connections that you observe.
 - i. Describe the type of contaminant and degree of hazard, size of piping and location and explain the cross-connection encountered to the customer representative/owner.
 - ii. Take photographs of any actual or potential cross-connection(s).
 - b. Register new assemblies in the backflow database, or verify existing database information, with the backflow prevention installed and document:
 - i. The type, make, model, size, serial number, location, type of contaminant and degree of hazard.
 - ii. Verify customer's information such as name, meter number, and contact information.
 - iii. Take photographs to verify device and location details, as necessary.
- Send Compliance Letters
 - a. Review the information gathered during the survey.
 - i. If you have any questions or doubts, go back and check the premises.
 - b. Complete a survey report as soon as possible.
 - i. The survey report shall state the backflow prevention assemblies required to meet District standards and the assessment of hazard or reason for the protection requirements.

- c. If assemblies within the customer's premises are accepted by the District in-lieu-of premises isolation, or as a condition or a lesser degree of premises isolation, those assemblies should be clearly identified in the survey report.
- d. Identify the regulations that have been violated and list the cross-connections found and remedial action required to eliminate or control them.
- e. If a compliance issue is identified, write a formal letter explaining the requirements and give a time frame for compliance.
 - i. Include the survey report, a copy of the District's installation standards, a link to the list of approved Washington State Approved Backflow Prevention Assemblies (<http://fccchr.usc.edu/list.html>) and the District's list of Washington State Certified Backflow Assembly Testers.

F. Compliance:

- Inspect customer's premises on the compliance date. Evaluate the installations and ensure the cross-connections are eliminated or controlled.
 - a. Make recommendations for deficiencies and get a timeframe for correction.
 - b. Schedule a re-inspection.
- Register new assemblies in the backflow database.
- Collect initial test reports of the backflow prevention assembly/assemblies.
- Enter the information into the backflow database and schedule the annual test notification for the next test year.

G. Noncompliance:

- Customers are considered noncompliant when:
 - a. A cross-connection exists but has not been eliminated or controlled commensurate with the District's assessed degree of hazard, within the timeline provided.

- b. There has been failure to comply with the District's requirements regarding installation, inspection, testing, maintenance or repair of backflow prevention.
 - c. Whenever an assembly is found to be improperly installed, defective, not commensurate with the degree of hazard, or has failed a test.
- If the requirements are not met, District staff will utilize this policy to determine the appropriate number of days to correct the problem, and reschedule an inspection.
- If requirements are still not met at this time, send a letter, or hang a door tag, defining the number of days for compliance based on the degree of hazard. This letter will identify a date for initiation of corrective action.

H. Corrective Action Procedure:

- Print out report of customers who are non-compliant with testing or corrective action.
 - a. Notify the Operations Manager and bring him or her up-to-date on specific information regarding services requiring corrective action.
 - b. Document in the customers billing account with the date, time, and reason for corrective action, or other action.
- Corrective action may include, but is not limited to:
 - a. Denying water service to a customer's premises until the cross-connection is controlled or eliminated.
 - i. Except in the event of an emergency, the District shall notify the King County Department of Permitting and Environmental Services (DPES) and the City of Renton Code Enforcement, prior to denying or discontinuing water service to a customer's premises.
 - b. Requiring the customer to install an approved backflow prevention assembly for premises isolation commensurate with the degree of hazard.
 - c. Reinstallation, repair, overhaul, and replacement of the backflow assembly by the customer may be required.

- d. In certain case-by-case situations, testing may be completed for a customer by or on behalf of the District. The customer will be invoiced on a time and materials basis.
- e. In certain case-by-case situations, the District may opt to install a backflow assembly for a customer by or on behalf of the District. The customer will be invoiced on a time and materials basis.

3. **ELEMENT 3 – Implementation of Installations**

A. Approved Backflow Prevention Assemblies:

- The District only allows approved backflow prevention assemblies that are included on the current list of backflow prevention assemblies approved for use in Washington State. (<http://fccchr.usc.edu/list.html>)
 - a. Assemblies not currently on the list, found installed for cross-connection protection will be allowed if:
 - i. The device was included on the list at the time of installation
 - ii. The device is commensurate with the degree of hazard
 - iii. The device has been properly maintained
 - iv. The device has been inspected and tested annually and has passed the annual tests
 - b. An unlisted device must be replaced with a listed approved backflow prevention assembly when it is moved, can no longer be maintained, tested, or repaired.

B. Proper Installation:

- Backflow assemblies are owned by the customers and as such are typically located on private property. All assemblies on private property are subject to local administrative authority/jurisdiction with permits and inspection for compliance with building and plumbing codes. District requirements on installation are supplement to, and do not supersede, those of the local administrative authority.

- Proper Installation of backflow assemblies includes:
 - a. Installation in the orientation for which they are approved;
 - b. Installation in a manner that facilitates their proper operation, maintenance, inspection, in-line testing (as applicable), and repair and replacement;
 - c. Installation that ensures the assembly will not become submerged due to weather-related conditions such as flooding
 - d. Approved backflow assemblies for premise isolation are installed at a location adjacent to the meter or property line or an alternate location acceptable to the District
 - e. When premises isolation assemblies are installed at an alternate location acceptable to the District, the District shall ensure that there are no connections between the point of delivery from the public water system and the approved backflow assembly, unless the installation of the connection meets the District's cross-connection control requirements and is specifically approved by the District

C. Fire Systems:

- Backflow protection is not required for residential flow-through or combination fire protection systems constructed of potable water piping and materials.
- For service connections with fire protection systems other than flow-through or combination systems, the District will require that backflow protection consistent with WAC 51-56-0500 of the Uniform Plumbing Code (UPC) is installed. The UPC requires minimum protection as follows:
 - a. An RPBA or RPDA for fire protection systems with chemical additions or using unapproved auxiliary water supply; and
 - b. A DCVA or DCDA for all other fire protection systems.
- For new fire connections, water service is not allowed until the customer complies with all of the cross-connection control requirements and the project is not final until the District has received satisfactory backflow assembly tests.

- For existing connections:
 - a. With chemical addition or using unapproved auxiliary supplies, the District shall ensure that backflow protection is installed within 30 days of the District notifying the customer of the high health cross-connection hazard or in accordance with an alternate schedule acceptable to the District.
 - b. Without chemical addition, without on-site storage, and using only the District's water (i.e., no unapproved auxiliary supplies on or available to the premises), the District shall ensure that backflow protection is installed within 12 months of notification by the District or at an earlier date if required by the agency administering the State Building Code as adopted under Chapter 51-04 WAC.
 - c. When establishing backflow protection retrofitting schedules for fire protection systems, the District may consider factors such as, but not limited to, impacts of assembly installation on sprinkler performance, costs of retrofitting, and difficulty of assembly installation.
 - d. In providing a timeline for compliance with existing fire systems requiring backflow protection, the District will:
 - i. Maintain a list of existing fire systems without backflow prevention as required in this section
 - ii. Send a letter notifying customer of timeline for compliance
 - iii. Follow Element 2, Section D, E & F for customers who are non-compliant

4. **ELEMENT 4 – Certified Cross-Connection Personnel**

A. The District assigns the responsibility of developing and implementation of the Cross-Connection Control Program (CCP) to the Cross-Connection Control Specialist (CCS) position as a lead role. In addition to the lead CCS, the District endeavors to have several alternate staff members certified to implement this program. The District also has field staff certified as Backflow Assembly Tester's (BAT).

- It is the responsibility of the CCS to:
 - a. Assess the type of contaminant and the degree of hazard posed by the customer's water system to the District's water system.

- b. Determine the appropriate level of backflow prevention.
 - c. Inspect approved backflow prevention assemblies installations to ensure that protection is provided commensurate with the assessed degree of hazard.
- It is the responsibility of the CCS or a BAT to inspect:
 - a. Air gaps installed in lieu of approved backflow prevention assemblies for compliance with the approved air gap definition.
 - b. Approved backflow prevention assemblies for correct installation and approval status.
- A BAT is required to test approved backflow prevention assemblies for proper operation. A BAT can also repair or replace approved backflow prevention assemblies.

5. **ELEMENT 5 – Backflow Preventer Inspection and/or Testing**

A. Inspection/Testing:

- The District will ensure that inspections and/or tests of approved air gaps and testing of approved backflow assemblies that protect the public water system are conducted when any of the following occur:
 - a. Upon installation, repair, reinstallation, or relocation of an assembly
 - b. Upon installation or re-plumbing of an air gap
 - c. After a backflow incident involving the assembly or air gap
 - d. Annually thereafter, unless the District requires more frequent testing for high hazard premises or for assemblies that repeatedly fail
- The District shall ensure that approved backflow prevention assemblies are tested using procedures acceptable to the WDOH, such as those specified in the most recently published edition of the USC Manual.
- When circumstances preclude the use of USC test procedures, the District may allow, on a case-by-case basis, the use of alternate (non-USC) test procedures acceptable to the District.

B. Annual Backflow Testing Schedule:

- Customer notifications: The majority of the District's backflow prevention assemblies are for low health hazard situations, such as irrigations systems for residential services. The District's annual testing schedule is designed to coincide with the startup of customer's irrigation systems in the spring of each year.
 - a. First Notification Letter to Customer – sent on or about May 1, each year. This is a letter requesting the required test to be completed within 60 days with a due date on or about June 30. (See Exhibit E).
 - i. Include with the letter:
 1. Test Form
 2. District's list of Washington State Certified BAT's
 3. Frequently asked questions related to Backflow
 - b. Second Notification Letter to Customer – sent on or about July 1, each year, with a due date of July 30. This is a reminder letter for customers that have not completed their tests by the June 30 due date. (See Exhibit F).
 - c. Door Tag – Hung on or about August 1, each year, indicating that the water services will be shut off for non-compliance on or about the 15th of August unless a testing appointment is made by the customer and confirmed by a Washington State Certified BAT. (See Exhibit G).
 - d. Scheduling extensions may be allowed on a case-by-case basis for new (less than one year) property owners.
- Customer Compliance: A customer is compliant with testing requirements when the District receives a test form indicating the backflow prevention assembly is functioning properly by the due date.
 - a. Enter the information into the database and schedule next annual test.
- Backflow Assembly Failure: When a test form indicates an assembly has failed its annual test, ensure the assembly is either repaired or replaced and re-tested by a Washington State Certified BAT.
 - a. If the assembly has been repaired and functions properly, enter the information into the backflow database and schedule the next annual test.
 - b. If the assembly has been replaced and functions properly, inspect and register the new assembly and enter the

information into the backflow database and schedule the next annual test.

- c. If the assembly is not repaired or replaced in a timely manner, follow Element 2, Section D, E & F for customers who are non-compliant. The degree of hazard will determine if any time is allowed for remedial action.
- Inspection Failures: The District shall ensure that an approved backflow prevention assembly or AVB, whenever found to be improperly installed, defective, not commensurate with the degree of hazard, or failing a test (if applicable) is properly reinstalled, repaired, overhauled, replaced and re-tested.
 - a. The District shall ensure that an approved air gap, whenever found to be altered or improperly installed, is properly re-plumbed or, if commensurate with the degree of hazard, is replaced by an approved RPBA.

6. **ELEMENT 6 – Quality Assurance Program**

A. Backflow Tester List

- The District maintains a list of Backflow Assembly Testers (BAT) for the convenience of its customers (aka “Convenience List”). To be included on this list or remain on this list, the following information is required each year.
 - a. Application form, which includes legal name, phone numbers, emails, and address of BAT Company.
 - b. Proof of current certification as a Washington State Backflow Assembly Tester (BAT) (i.e., photocopy of card,) and;
 - c. Submission of annual test kit calibration or proof of functioning within factory specifications report, and;
 - d. Current certificate of liability insurance for a minimum of one million dollars, including resubmittal of certificates expiring during the testing cycle.
 - e. Current copy of business license.
- The District will send notice to existing BAT to be included on the Convenience List after February 1 of each year detailing requirements.
 - a. Thirty (30) days is allowed for response or the BAT Company will not be included in that year’s Convenience List.

B. Backflow Assembly Testers Not On the List

- Test reports received by BATS not on the District's Convenience List must be verified, when entering test forms in BPMS program, for status as follows:
 - a. Currently certified as Washington State Backflow Assembly Tester.
 - b. Test gauge accuracy report or calibration.
- Test reports received by BAT's without current certification or gauge calibration/accuracy will have paperwork returned with an explanation to the owner of the backflow prevention assembly.
- Any questions on certification status can be answered by calling Washington Department of Health (1-360-236-3141).

C. Test Report Contents/ Timeframes

- Test reports accepted by the District must contain, at a minimum, the information contained in example "Test Report" (See Exhibit H).
- Check test report for completeness.
 - a. If test report is complete (with all items filled out) and backflow prevention assembly was satisfactorily tested, verify that BAT is currently certified and test gauge has been checked for accuracy or calibrated on an annual basis. Then the report is accepted, recorded, and filed.
 - b. If not complete, did not pass test, if BAT is not currently certified, or if gauge has not been checked for accuracy or calibrated on an annual basis, then the report is returned notifying the customer of the same.
- Test reports must be submitted before the date indicated on the test request letter unless arrangements are made with the District. Document any such arrangements and place in the customer's account.
- The District's preferred method of receiving test reports is by email at info@kcwd90.com.

D. Complaints about Testers

- Any complaints about a BAT will be tracked and documented by the District.
 - a. BAT's with chronic or severe complaints may be subject to follow up action.
 - b. Follow up action may be taken if necessary, as determined on a case by case basis and reported to the Board.
 - c. Follow up action may include;
 - i. A written letter of findings,
 - ii. Observation of field testing by District Staff,
 - iii. Removal from the District's Convenience List or
 - iv. Exclusion of future test reports.
 - d. Follow up action will include reporting to the WDOH at 1-800-525-2536 Ext. 3.

7. **ELEMENT 7 – Backflow Incident Response**

A. Overview: Response to a backflow incident or possible backflow incident can mean the difference between injury, sickness and possibly death. Proper response can also eliminate or minimize District liability.

- In all cases, report the possible incident to your immediate supervisor. If unavailable, use chain of command.
- If an incident is on private property, the local authority with jurisdiction should be contacted, as it is their jurisdiction.
 - a. Questions can be referred to the Washington State Building Code Council or local jurisdiction.
- If the incident is in the distribution system, notify the Seattle/King County Public Health Department and the WDOH.
 - a. When a backflow incident is known by the District, notification by the end of the next business day, when the incident has:
 - i. Contaminated the public water system
 - ii. The incident occurred within the premises of a customer served by the District

- The incident response plan will include, but will not be limited to:
 - a. Notification of affected population
 - b. Notification and coordination with other agencies, such as WDOH, Seattle Public Utilities, King County Department of Permitting and Environmental Services (DPES) and the City of Renton Code Enforcement.
 - c. Identification of the source and type of contamination
 - d. Collect samples for onsite analysis and laboratory analysis, resample as needed
 - e. Isolation of the source of contamination and the affected area(s)
 - f. Cleaning, flushing, and other measures to mitigate and correct the problem
 - g. Testing of backflow prevention assembly to confirm device is in good working order.
 - h. Apply corrective action to prevent future backflow occurrences
 - i. Complete the backflow incident report form. (See Exhibit I)

8. **ELEMENT 8 – Public Information Program**

A. Overview: The District is committed to educating our customers on the reasons for maintaining a CCP. Currently, District efforts include the following:

- Communication with customers during investigation/site survey.
- Periodic entity meetings with cross-connection as an agenda item.
- Participation in the regional cross-connection organization.
- Education and the promotion of uniformity in the field.
- Additional education tools include:
 - a. Newsletter articles.
 - b. Frequently Asked Questions and backflow requirements available on District website.
 - c. New customer welcome packet including cross-connection information.

- d. Inclusion of cross-connection education in the customer confidence report.

9. **ELEMENT 9 – Recordkeeping**

A. Backflow Database: The District maintains a master list of customer premises, relying on approved backflow prevention assemblies to protect the District's system from contamination, in the form of the cross-connection database.

- The District's cross-connection database includes:
 - a. Backflow assembly inventory information, including:
 - i. Assembly description (type, manufacturer, model, orientation, size and serial number)
 - ii. Exact assembly location
 - iii. Type of contaminant
 - iv. Assessed degree of hazard
 - v. Installation date
 - b. Approved air gaps installed in lieu of approved assembly details, including:
 - i. Exact air gap location
 - ii. Type of contaminant
 - iii. Assessed degree of hazard
 - iv. Installation date
 - c. Backflow assembly inspection/site survey reports.
 - d. Annual backflow assembly testing reports completed by a BAT.
- Records related to the master list will be kept as long as the premises pose a cross connection hazard to the District's system.
 - a. Records related to individual backflow prevention assemblies will be kept for five years or the life of the device, whichever is shorter.

B. Test Reports: Hard copies of test reports for each assembly, for each annual test year, will be maintained alphabetically in three ring binders by year.

- Information provided by annual test reports will be entered into the backflow database, including, but not limited to;
 - a. Make, model, size, serial number, location, type of contaminant and installation date.

- b. The testing results on each backflow assembly installed.
- c. Inspection notes, forms, etc.
- d. Copies of correspondence or summaries of conversations.
- e. Photographs of the assembly or cross-connections found; before and after if available.

C. Annual Summary Report: The cross-connection program summary reports are prepared annually. Completed reports are kept in the cross-connection control master files and submitted to the WDOH in January of each year.

- Annual summary reports will be kept for five years.

D. Survey and Inspection Reports: Survey/Inspection reports of premises surveyed are maintained in BPMS and the District's work order system.

E. Incident Reports: Documented details of all backflow incidents on the backflow incident report form as approved by WDOH. (See Exhibit J) included in the most recent edition of the PNWS-AWWA Yellow Manual

- Include all backflow incident report(s) in the annual cross-connection program summary report, unless otherwise requested by WDOH.
- Records regarding backflow incidents will be kept for five years.

F. Public Records: The District shall make all records and reports available to the WDOH, upon request.

10. **ELEMENT 10 – RECLAIMED WATER PROVISIONS**

- The District prohibits to intentional return of used water to the District's distribution system.
- Water District 90 does not have any facilities to receive and/or distribute reclaimed water within our service area. Should the need arise; a plan will be developed in response to that situation.