



Missoula Water Utility Rules and Regulations

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Rule 1 – Main Extensions

A. Applicability

1. All extensions of distribution mains, from the utility's basic production and transmission system or existing distribution system, to serve new customers shall be made under the provisions of this rule unless specific authority is first obtained from the City Council to deviate there from. A main extension contract shall be executed by the utility and the applicant or applicants for the main extension before the utility commences construction work on said extensions or, if constructed by applicant or applicants, before the facilities comprising the main extension are transferred to the utility.
2. The utility may, but will not be required to, make extensions under this rule in easements or rights-of-way where final grades have not been established., or where street grades have not been brought to those established by public authority. If extensions are made when grades have not been established and there is a reasonable probability that the existing grade will be changed, the utility shall require that the applicant or applicants for the main extension deposit, at the time of execution of the main extension agreement, the estimated net cost of relocating, raising or lowering facilities upon establishment of final grades. Adjustment of any difference between the amount as deposited and the actual cost of relocating, raising or lowering facilities shall be made within ten days after the utility has ascertained such actual cost. The net deposit representing actual cost is not subject to refund. The entire deposit related to the proposed relocation, raising or lowering shall be refunded when such displacements are determined by proper authority to be not required.

B. Definitions

1. A "bona-fide customer," for the purposes of this rule, shall be a customer (excluding any customer formerly served at the same location) who has given satisfactory evidence that service will be reasonably permanent to the property which has been improved with a building of a permanent nature, and to which service has commenced. The provision of service to a real estate developer or builder, during the construction or development period, shall not establish him as a bona-fide customer.
2. A "real estate developer" or "builder," for the purposes of this rule, shall include any individual, association of individuals, partnership, or corporation that divides a parcel of land into two or more portions, or that engages in the construction and resale of individual structures on a continuing basis.
3. The "adjusted construction cost," for the purpose of this rule, shall be reasonable and shall not exceed the costs recorded in conformity with generally accepted water utility accounting practices, and as specifically defined in the Uniform System of Accounts for Water Utilities for installing facilities of adequate capacity for the service requested. If the utility, at its option, should install facilities with a larger capacity or resulting in a greater footage of extension than required for the service requested, the "adjusted construction cost," for the purpose of this rule, shall be determined by the application of an adjustment factor to actual construction cost of facilities installed. This factor shall be the ratio of estimated cost of required facilities, including special facilities as provided in subparagraph F.2. To estimated cost of actual facilities installed.

C. Ownership, Design, And Construction Of Facilities

1. Any facilities installed hereunder shall be the sole property of the utility.
2. The construction of the facilities including, size, type, and quality of materials utilized, shall be specified by the utility; and the actual construction shall be done by the utility or by a constructing agency acceptable to it.
3. When an extension must comply with an ordinance, regulation, or specification of a public authority, the estimated and adjusted construction costs of said extension shall be based upon the facilities required to comply therewith; including the cost of installing and connecting fire hydrants.

D. Estimates, Plans, and Specifications

1. Upon request by a potential applicant for a main extension, the utility shall prepare, without charge, a preliminary sketch and rough estimates of the cost of installation to be advanced by said applicant.
2. Any applicant for a main extension requesting the utility to prepare detailed plans, specifications, and cost estimates shall be required to deposit with the utility an amount equal to the estimated cost of preparation of such material. The utility shall, upon request, make available within 45 days after receipt of the deposit referred to above, such plans, specifications, and cost estimates of the proposed main extension. If the extension is to include oversizing of

facilities to be done at the utility's expense, appropriate details shall be set forth in the plans, specifications, and cost estimates.

3. In the event a main extension contract with the utility is executed within 180 days after the utility furnishes the detailed plans and specification, the deposit shall become a part of the advance, and shall be refunded in accordance with the terms of the main extension contract. If such contract is not so executed, the deposit to cover the cost of preparing plans, specifications, and cost estimates shall be forfeited by the applicant for the main extension and the amount of the forfeited deposit shall be credited to the account or accounts to which the expense of preparing said material was charged.
4. When detailed plans, specifications, and cost estimates are requested, the applicant for a main extension shall furnish a map to a suitable scale showing the street and lot layouts and, when requested by the utility, contours or other indication of the relative elevation of the various parts of the area to be developed. If changes are made subsequent to the presentation of this map by the applicant, and these changes require additional expense in revising plans, specifications, and cost estimates, this additional expense shall be borne by the applicant, not subject to refund, and the additional expense thus recovered shall be credited to the account or accounts to which the additional expense was charged.

E. Timing and Adjustment of Advances

1. Unless the applicant for the main extension elects to arrange for the installation of the extension itself, as permitted by the subsection F.3, the full amount of the required advance must be provided to the utility at the time of execution of the main extension agreement.
2. An applicant for a main extension who advances funds shall be provided with a statement of actual construction cost and adjusted construction cost showing in reasonable detail the costs incurred for material, labor, any other direct and indirect costs, overheads, and total costs; or unit costs; or contract costs, whichever are appropriate.
3. Said statement shall be submitted within sixty days after the actual construction costs of the installation have been ascertained by the utility. In the event that the actual construction costs for the entire installation shall not have been determined within 120 days after completion of construction work, a preliminary determination of actual and adjusted construction costs shall be submitted, based upon the best available information at that time.
4. Any differences between the adjusted construction costs and the amount advanced shall be shown as a revision of the amount of advance and shall be payable within thirty days of date of submission of statement.

F. Extensions to serve subdivisions tracts, housing projects, industrial developments, commercial buildings, or shopping centers.

1. Unless the procedure outlined in subsection F.3, is followed, an applicant for a main extension to serve a new subdivision, tract, housing project, industrial development, commercial building, or shopping center shall be required to advance to the utility, before construction is commenced, the estimated reasonable cost of the extension to be actually installed, from the

nearest utility facility at least equal in size or capacity to the main required to serve both the new customers and a reasonable estimate of the potential customers who might be served directly from the main extension.

2. If the construction of special facilities is needed to serve a proposed main extension, the cost of the special facilities shall be advanced by the applicant in accordance with this paragraph.
 - (a) A special facility is any facility other than a distribution main needed to serve the proposed main extension and includes, but is not limited to, new transmission mains, booster pumps, wells, and reservoirs.
 - (b) When such facilities to be installed will supply both the main extension and other parts of the utility's system, and at least 50 percent of the design capacity (in gallons, gpm, or other appropriate units) is required to supply the main extension, the cost of such special facilities may be included in the advance, subject to refund, as hereinafter provided, along with refunds of the advance of the cost of the extension facilities described in subsection F.1 above.
3. In lieu of providing the advances in accordance with subsection F.1 and F.2, the applicant for a main extension shall be permitted, if qualified in the judgment of the utility, to construct and install the facilities itself, or arrange for their installation pursuant to competitive bidding procedures initiated by it and limited to the qualified bidders. The cost, including the cost of inspection and supervision by the utility, shall be paid directly by applicant. The applicant shall provide the utility with a statement of actual construction cost in reasonable detail. The amount to be treated as an advance subject to refund shall be the lesser of (1) the actual cost or (2) the price quoted in the utility's detailed cost estimate. The installation shall be in accordance with the plans and specifications submitted by the utility pursuant to subsection D.2.
4. If, in the opinion of the utility it appears that a proposed main extension will not, within a reasonable period, develop sufficient revenue to make the extension self-supporting, or if for some other reason it appears to the utility that a main extension contract would place an excessive burden on customers, the utility may require nonrefundable contributions of plant facilities, including special facilities, from developers to the extent that the main extension contract will not be self-supporting. Such contributions will include a tax gross up as set forth in ARM 38.5.2903(1)(b).

G. Extensions to Serve Individual Customers

1. Unless the procedure outlined in subsection F.3 is followed, an applicant for a main extension to serve a new individual customer shall be required to advance to the utility before construction is commenced the estimated reasonable cost of the extension to be actually installed.
2. If subsequent applicants for water service are connected directly to the main extensions funded by the original individual customers, the subsequent applicants will advance to Missoula Water and Missoula Water will refund to the earlier applicants a prorated portion of the original advances in similar fashion to the methodology set out in subsection H.3.

H. Refunds

1. The amount advanced under subsections F.1, F.2, F.3 and G.1, shall be subject to refund by the utility, in cash, without interest, to the party or parties entitled thereto as set forth in the following paragraphs. The total amount so refunded shall not exceed the total of the amount advanced and for a period not to exceed 40 years after the date of the contract.
2. Payment of refunds shall be made not later than June 30 each year beginning the year following execution of the main extension contract, or not later than 6 months after the contract anniversary date if on an anniversary date basis.
3. Whenever costs of main extension and/or special facilities have been advanced pursuant to subsections F.1, F.2, F.3 and G.1, the utility shall annually refund to the contract holders an amount equal to 2 1/2 percent of the advances until the principal amounts of the contracts have been fully repaid.
 - (a) Whenever costs of special facilities have been advanced pursuant to subsection F.2 or F.3, the amount so advanced shall be divided by the number of lots (or living units, whichever is greater) which the special facilities are designed to serve, to obtain an average advance per lot (or living unit) for special facilities. When another builder applies for a main extension to serve any lots for which the special facilities are to be used, the new applicant shall, in addition to the costs of his proposed main extension, also advance an amount for special facilities. This amount shall be the average advance per lot for special facilities for each lot to be used less 2 1/2 percent of the average advance for each year in which refunds have been due and payable on the original contract, prorated to June 30, or to the contract anniversary date, on a monthly basis. The amount advanced to the utility by the new applicant shall be immediately refunded to the holder of the original contract, which included the cost of the special facilities, and the original contract advance will be reduced accordingly. The utility will thenceforth refund 2 1/2 percent annually on each of the contract amounts, as determined above, to the holders of the contracts. Advances and refunds based on additional builder participation will be determined in a similar manner. In no case shall the refund on any contract exceed the amount advanced.
 - (b) If an advance required by this rule is funded, in whole or in part, under a cooperative agreement between a real estate developer or builder, and a unit of local government, subject to the review and acceptance of the utility, the utility will disburse the refunds due under this subparagraph, including refunds paid by and/or due to subsequent real estate developers and builders, in accordance with the cooperative agreement.

Cross-Connection Control Program and Plan of Operation

Section I - Definitions

- A. Air-Gap Separation: The term "air-gap separation shall mean a physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An approved air gap shall be at least double the diameter of the supply pipe measured vertically above the overflow rim of the vessel - in no case less than one inch.
- B. Approved Backflow Prevention Assembly: The term "approved backflow prevention assembly" shall mean an assembly which is listed by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California (FCCC & HR, USC) as an approved backflow prevention assembly.
- C. Approved Water Supply: The term "approved water supply" means any water supply whose potability is regulated by a State or local health agency.
- D. Atmospheric Vacuum Breaker: The term "atmospheric vacuum breaker" (AVB) (also known as the "non-pressure type vacuum breaker") shall mean an assembly containing a float-check, a check seat and an air inlet port. The flow of water into the body causes the float to close the air inlet port. When the flow of water stops, the float falls and forms a check valve against backsiphonage and at the same time opens the air inlet port to allow air to enter and satisfy the vacuum. A shutoff valve immediately upstream may be an integral part of the assembly. An atmospheric vacuum breaker is designed to protect against a health hazard (i.e. Contaminant) under a backsiphonage condition only. No shutoff valve may be installed downstream of an AVB.
- E. Auxiliary Supply: The term "auxiliary supply" means any water supply on or available to the premises other than the approved water supply. These auxiliary supplies may be polluted or contaminated or may be objectionable and constitute an unacceptable water source over which the water purveyor does not have sanitary control.
- F. AWWA Standard: The term "AWWA Standard" means an official standard developed and approved by the American Water Works Association (AWWA).
- G. Backflow: The term "backflow" means the undesirable reversal of water flow or the reversal of water flow containing other liquids, gases, or other substances from a connected source that flows into the distribution pipes of the public water supply system.
- H. Backpressure: The term "backpressure" means any increase of pressure in the downstream piping system (by pump, elevation of piping, or steam and/or air pressure) above the supply pressure at the point where backflow could occur.
- I. Backsiphonage: The term "backsiphonage" shall mean a form of backflow due to a reduction in system pressure which causes a sub-atmospheric pressure to exist at a site in the water system.
- J. Certified Backflow Prevention Assembly Tester: The term "certified backflow prevention assembly tester" means a person who holds a current certificate from any state certification program authorizing the person to test backflow prevention assemblies or who holds a current certificate from the American Society of Sanitary Engineers.

- K. Contamination: The term "contamination" means a degradation of the quality of the potable water by any foreign substance which creates a hazard to the public health, or which may impair the usefulness or quality of the water.
- L. Critical Level: The term "critical level" shall mean the C-L or C/L marking of the backflow prevention assembly which is the point established by the testing laboratory and marked by the manufacturer, from which the minimum required elevation above the flood rim of a fixture, receptacle or other use is determined. In the absence of such marking, the lowest part of the assembly shall be deemed to be the critical level.
- M. Cross-Connection: The term "cross-connection" means any actual or potential connection between a potable water system used to supply water for drinking purposes and any other water supply system, either public or private, or a wastewater or sewer line or other potential source of contamination so that a flow of water into or contamination of the public water supply system from the other source of water or contamination is possible. By-pass arrangements, jumper connections, removable sections, swivel or changeover assemblies, or other assemblies through which backflow could occur shall be considered to be cross-connections.
- N. Degree of Hazard: The term "degree of hazard" shall mean either a pollutional (non-health) or contamination (health) hazard and is derived from the evaluation of conditions within a system.
- O. Double Check Valve Assembly: The term "double check valve assembly" means an assembly of two internally loaded, independently acting check valves, including resilient seated shut-off valves on each end of the assembly and test cocks for testing the water tightness of each check valve.
- P. Double Check-Detector Assembly: The term "double check- detector assembly" means a specially designed assembly composed of a line-size approved double check valve assembly with a specific bypass water meter and a meter-sized approved double check valve assembly. The meter shall register accurately for only very low rates of flow and shall show a registration for all rates of flow.
- Q. Fixed Air Gap: The term "fixed air gap" means a backflow prevention assembly manufactured to meet the requirements of an air gap.
- R. Health Agency: The term "health agency" means the Montana Department of Environmental Quality (DEQ) or the Missoula City/County Health Department (MCCHD).
- S. Missoula Water: The term "Missoula Water" means any public water supply owned or operated by the City of Missoula.
- T. Non-Potable Water: The term "non-potable water" shall mean water which is not derived from a water supply and system under the authority of the appropriate health authority and is not approved for drinking, personal, or culinary use. Water in a fire, irrigation, reclaimed waste water or industrial water system is deemed non-potable.
- U. Pollution: The term "pollution" shall mean an impairment of the quality of the water to a degree which does not create a hazard to the public health but which does adversely and unreasonably affect the aesthetic qualities of such water for domestic use.

- V. Person: The term "person" means an individual, corporation, company, association, partnership, municipality, public utility, or other public body or institution.
- W. Premises: The term "premises" means any and all areas on a water user's property which are served or have the potential to be served by the public water system.
- X. Pressure Vacuum Breaker: An assembly that has an independently operating, loaded check valve and an independently operating, loaded air inlet valve located on the discharge side of the check valve. The pressure vacuum breaker must be equipped with properly located test cocks and tightly closing shutoff valves located at each end of the assembly. This assembly is designed to protect only against a backsiphonage condition, not against backpressure. A shutoff valve may be used downstream of a pressure vacuum breaker.
- Y. Public Water Supply: The term "public water supply" means a system for the provision of water for human consumption that has 15 or more service connections or regularly serves at least 25 persons daily for a period of at least 60 days out of the year.
- Z. Reduced Pressure Zone Backflow Prevention Assembly: The term "reduced pressure principle backflow prevention assembly" means an assembly incorporating two internally loaded, independently operating check valves and an automatically operating differential relief valve located between the two checks, including resilient seated shut-off valves on each end of the assembly and the necessary test cocks for testing the assembly.
- AA. Reduced Pressure Zone-Detector Backflow Assembly: The term "reduced pressure zone-detector assembly" shall mean a specially designed assembly composed of a line-size approved reduced pressure principle backflow prevention assembly with a specific bypass water meter and a meter-sized approved reduced pressure principle backflow prevention assembly. The meter shall register accurately for only very low rates of flow and shall show a registration for all rates of flow.
- BB. Service Connection: The term "service connection" refers to the point of connection of a user's piping to the Missoula Water system.
- CC. Water Supplier: The term "water supplier" means the person who owns or operates the approved water supply system.
- DD. Water User: The term "water user" means any person obtaining water from an approved water supply.

Section II - Cross-Connection Protection Requirements

A. General Provisions

1. Unprotected cross-connections with the public water supply are prohibited.
2. Whenever Missoula Water finds that backflow protection is necessary to protect the public water supply, Missoula Water will require the water user to install an approved backflow prevention assembly at the water user's expense for continued service or before a new service will be granted.

3. Wherever Missoula Water finds that backflow protection is necessary on a water supply line entering a water user's premises, then any and all water supply lines from Missoula Water's mains entering such premises, buildings, or structures shall be protected by an approved backflow prevention assembly. The type of assembly to be installed will be in accordance with the requirements of this program.

B. Where Protection Is Required

1. Each service connection from the Missoula Water system supplying water to premises having an auxiliary water supply shall be protected against backflow of water from the premises into the public water supply system even if the auxiliary water supply is accepted as an additional source by Missoula Water and is approved by the Montana DEQ or the Missoula City/County Health Department (MCCHD).
2. Each Missoula Water service connection supplying water to any premises on which any substance is handled in such a fashion that it may be allowed to enter the public water system shall be protected against backflow from the premises into the public water supply with an approved backflow prevention assembly: This shall include the handling of process waters and waters originating from the Missoula Water system which have been subjected to any change in water quality.
3. Backflow prevention assemblies shall be installed on the service connection to any premises having: (a) internal cross-connections that cannot be permanently corrected and controlled to the satisfaction of the state or local Health department and Missoula Water, (b) complicated plumbing and piping arrangements or where entry to all portions of the premises are not readily accessible for inspection purposes, making it impracticable or impossible to ascertain whether or not cross-connections exist, or (c) cross-connections that cannot be practically eliminated.

C. Type of Protection Required

1. The type of protection that shall be provided to prevent backflow into the approved water supply shall be commensurate with the degree of hazard that exists on the consumer's premises. The types of protective assembly that may be required (listed in an increasing level of protection) include: 1. Double Check Valve Assembly (DCA), 2. Atmospheric Vacuum Breaker (AVB), 3. Pressure Vacuum Breaker (PVB), 4. Reduced Pressure Zone Backflow Prevention Assembly (RP), and 5. Air-gap separation (AG). The water user may choose a higher level of protection than required by Missoula Water. The minimum types of backflow protection required to protect the approved water supply from varying degrees of hazard are given in Table I. Situations which are not covered in Table I shall be evaluated on a case by case basis and the appropriate backflow protection determined by Missoula Water shall be installed by the water user.

D. Exemptions

A cross-connection is exempt from the standards in this program if the following conditions are met:

1. The cross-connection is with a public water supply system that has been approved by the DEQ;

2. The owner or operator of the public water supply that is or will be connected to the system with the approved voluntary cross-connection control program:
 - (a) sends a written request for an exemption to the public water supplier with the approved voluntary program; and
 - (b) submits a sanitary survey conducted within the three years preceding the request for an exemption that
 - (A) indicates that there are no cross-connections that violate Rule II (1) and (2) within the public water supply system that is or will be connected; and
 - (B) has been conducted by the DEQ or a person who has contracted with the department for the purpose of performing the sanitary survey: or
 - (C) has been determined by the DEQ to be competent and reliable: and
 - (c) the public water supply system with the approved voluntary program determines in writing that the public water supply that is or will be connected is acceptable as a source.

Table I – Type of Backflow Protection Required

Degree of Hazard	Minimum Type of Backflow Prevention
A. Sewage and Hazardous Substances	
1. Premises on which there are wastewater pumping and/or treatment plants and there is no interconnection with the potable water system. This does not include a single family residence that has a sewage lift pump. An RP may be provided in lieu of an air gap if approved by Missoula Water.	AG
2. Premises on which hazardous substances are handled in such a manner that the substances may enter a potable water system. This does not include a single family residence that has a sewage lift pump. An RP may be provided in lieu of an AG if approved by Missoula Water.	AG
3. Premises on which there are irrigation systems into which fertilizers, herbicides or pesticides are, or can be, introduced.	RP
4. Premises, including single family residences, on which there are underground irrigation systems. An atmospheric or pressure vacuum breaker may be provided in lieu of an RP if approved by Missoula Water.	RP
B. Premises on which there is an unapproved auxiliary water supply which is interconnected with the public water system. An RP may be provided in lieu of an AG if approved by Missoula Water.	AG
C. Fire Protection Systems	
1. Premises on which the fire system is supplied from the public water system and interconnected with an unapproved auxiliary water	AG

Degree of Hazard	Minimum Type of Backflow Prevention
supply. An RP may be provided in lieu of an AG, if approved by Missoula Water.	
2. Premises on which the fire system is supplied from the public water system and where either elevated storage tanks or fire pumps which take suction from private reservoirs or tanks are used.	DCA
3. Premises on which the fire system is supplied from the public water system and there is standing water in the fire system or outside fire hose connections.	DCA
D. Premises on which entry is restricted so that inspections for cross-connections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross-connections do not exist.	RP
E. Premises on which there is a history of cross-connections being established or re-established.	RP
F. Premises on which two or more services supply water to the same building, structure, or premises shall have at least an RP assembly on each water service to be located adjacent to and on the customer's side of the respective meters. A DCA may be provided in lieu of an RP if approved by Missoula Water.	RP
G. Premises on which the water user has installed a booster pump to increase the supply pressure to the building, structure, or premises shall have at least an RP assembly on each water service to be located adjacent to and on their customer's side of the respective meters. A DCA may be provided in lieu of an RP if approved by Missoula Water.	RP
H. Premises on which there are boilers, water heaters, heat exchangers, cooling towers, air conditioners, or other plumbing arrangements in which corrosion inhibitors, antifreeze, or other chemicals are or can be used shall have at least an RP assembly on each water service to be located adjacent to and on the customer's side of the respective meters. A DCA may be provided in lieu of an RP if approved by Missoula Water.	RP
I. Premises on which there is water treatment equipment through which chemicals or other substances are or can be injected into the customer's water supply shall have at least an RP on each water service to be located adjacent to and on the customer's side of the respective meters. A DCA may be provided in lieu of an RP if approved by Missoula Water.	RP

Section III - Backflow Prevention Assemblies

A. Approved Backflow Prevention Assemblies

1. Only backflow prevention assemblies which are listed on the "List of Approved Backflow Prevention Assemblies" published by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California shall be acceptable for installation by a water user connected to Missoula Water’s potable supply.

2. Upon request, Missoula Water will provide a list of approved backflow prevention assemblies to any interested person.

B. Existing Backflow Prevention Assemblies

Approved backflow prevention assemblies that are currently in service shall be tested and if found to be in serviceable condition can be left in service after certain information (make, model, size, serial number, and test results) has been provided to Missoula Water. The assembly must then be tested yearly by a certified backflow prevention assembly tester (see Section VII) or more frequently if determined necessary by Missoula Water. Existing backflow prevention assemblies found to be unserviceable or whose application has been misapplied shall be removed and replaced with an appropriate assembly approved by Missoula Water.

C. Backflow Prevention Assembly Installation

Backflow prevention assemblies shall be installed in a manner prescribed by Missoula Water. Location of the assemblies should be as close as practical to the user's connection. Missoula Water shall have the final authority in determining the required location of a backflow prevention assembly.

1. Air-gap separation (CAG) - The air gap separation shall be located on the user's side of and as close to the service connection as practical. All piping from the service connection to the receiving tank shall be above grade and be entirely visible. No water use shall be provided from any point between the service connection and the air-gap separation. The water inlet piping shall terminate a distance of at least two (2) pipe diameters above the supply inlet, but in no case be less than one (1) inch above the overflow rim of the receiving vessel. Properly installed, the air gap may be used to protect against all levels of backflow hazards.
2. Reduced pressure zone backflow prevention assembly (RP) - The approved reduced pressure zone backflow prevention assembly shall be installed on the user's side and as close to the service connection as practical. The assembly shall be installed a minimum of twelve inches (12") above grade and not more than thirty inches (30") above grade measured from the bottom of the assembly and with a minimum of twelve inches (12") side clearance. The assembly shall be installed in a horizontal position and be readily accessible for maintenance and testing. Water supplied from any point between the service connection and the RP assembly shall be protected in a manner approved by Missoula Water. The water user must provide adequate drainage to prevent flooding in the event the RP assembly bypasses water to atmosphere and sufficient protection to prevent the assembly from freezing. Properly installed, the RP may be used to protect against all levels of hazard under both backpressure and backsiphonage conditions.
3. Double check valve assembly (DCA) - The approved double check valve assembly shall be located as close as practical to the user's connection and shall be installed above grade, if possible, and in a manner where it is readily accessible for testing and maintenance. If a double check valve assembly is put below grade it must be installed in a vault such that there is a minimum of six inches (6") between the bottom of the vault and the bottom of the assembly and so that the top of the assembly is no more than a maximum of eight inches (8") below grade. Also there must

be a minimum of twenty four (24") of clearance between the side of the assembly with the test cocks and the side of the vault, and also a minimum of twelve inches (12") clearance between the other side of the assembly and the side of the vault. Special consideration must be given to double check valve assemblies of the "Y" type. These assemblies must be installed on their "side" with the test cocks in a vertical position so that either check valve may be removed for service without removing the assembly. Vaults which do not have an integrated bottom must be placed on a three inch (3") layer of gravel. The water user must provide adequate drainage to prevent flooding in the event the assembly leaks or to accommodate spillage during testing and repairs. The water user is responsible for providing adequate protection to prevent freezing of the assembly. The DCA may be used to protect against a non-health hazard under both backpressure and backsiphonage conditions.

4. Pressure Vacuum Breaker (PVB) - The approved pressure vacuum breaker assembly shall be located as close as practical to the user's connection or meter and shall be installed at least 12" inches above all downstream plumbing and the highest fixture flood level rim, outlet, or highest point of water use. In no case should the PVB assembly be used if backpressure could develop in the downstream piping. The PVB shall be installed inline in a vertical position with adequate space to facilitate maintenance and testing. The PVB shall be installed in an area where water spillage through the vacuum relief valve (air inlet) is not objectionable. Adequate drainage to floor drains should be provided to accommodate this spillage. The PVB shall not be installed in a vent hood or where toxic or objectionable fumes or substances could enter and contaminate the potable water piping. Prior to installation, refer to the manufacturer's literature concerning temperature ranges. The PVB must be protected from freezing temperatures and if installed where temperatures will reach 110 degrees F (43 degrees C) or above, the hot water type of assembly must be used. Properly installed, the PVB may be used to protect all levels of hazard under backsiphonage conditions only.
5. Atmospheric Vacuum Breaker (AVB) - The approved atmospheric vacuum breaker assembly shall be located as close as practical to the user's connection or meter and shall be installed at least six inches above all downstream piping and the highest fixture flood level rim, outlet or highest point of water use. In no case should the AVB assembly be used if backpressure could develop in the downstream piping. The AVB shall be installed inline in a vertical position with adequate space to facilitate maintenance and testing. The AVB shall be installed in an area where water spillage through the vacuum relief valve (air inlet) is not objectionable. Adequate drainage to the floor drain must be provided to accommodate this spillage. The AVB shall not be installed in a vent hood or where toxic or objectionable fumes or substances could enter and contaminate the potable water piping. The AVB shall not be installed where it will be in continuous operation or under continuous pressure for more than 12 consecutive hours. When used for long periods of time the air inlet valve could become stuck in the closed position. The AVB shall not have any valves installed downstream from the assembly (the discharge side of the plumbing should be exposed to the atmosphere). Prior to installation, refer to the manufacturer's literature for temperature ranges. The AVB must be protected from freezing temperatures and if installed where temperatures will reach 110 degrees F (43 degrees C) or above, the hot water type of assembly must be used. Properly installed, the AVB can be used to protect against all levels of hazard under backsiphonage conditions only.

D. Backflow Prevention Assembly Testing and Maintenance

1. The owners of any premises on which, or on account of which, backflow prevention assemblies are installed, shall have the assemblies tested by a person who holds a current certificate from any state certification program authorizing the person to test backflow prevention assemblies or who holds a current certificate from the American Society of Sanitary Engineers. Backflow prevention assemblies must be tested at least annually and immediately after installation, relocation or repair. Missoula Water may require a more frequent testing schedule if it is determined to be necessary. Missoula Water will maintain records regarding the inspection, testing, repair, and location of backflow assemblies on customer premises. No assembly shall be placed back in service unless it is functioning as required. A report in a form acceptable to Missoula Water each time the assembly is tested, relocated or repaired. These assemblies shall be serviced, over-hauled, or replaced whenever they are found to be defective and all costs of testing, repair and maintenance shall be borne by the water user. All repair and maintenance of backflow prevention assemblies shall be done by a person meeting all state and local requirements. If a water user has a water service considered critical (i.e. a water service that can't be shut off, even for a few moments at any time), Missoula Water will require either two services to the facility, each having equal backflow protection determined by the degree of actual or potential hazard, or the user may install two assemblies in parallel on the existing service. One assembly can provide water service to the user while the other is tested and/or repaired.
2. Missoula Water will notify affected customers by mail when annual testing of an assembly is needed and also supply users with the necessary forms which must be filled out each time an assembly is tested or repaired.
3. Upon request, Missoula Water will provide a list of persons qualified to test backflow prevention assemblies.

E. Backflow Prevention Assembly Removal

Approval must be obtained from Missoula Water before a backflow prevention assembly is removed, relocated, or replaced.

1. Removal: The user of an assembly may be discontinued and the assembly removed from service upon verification by Missoula Water that a hazard no longer exists or is not likely to be created in the future;
2. Relocation: An assembly may be relocated following confirmation by Missoula Water that the relocation will continue to provide the required protection and satisfy installation requirements. A retest will be required following the relocation of the assembly;
3. Repair: An assembly may be removed for repair provided the water use is either disconnected until repair is completed and the assembly is returned to service, or the service connection is equipped with other backflow protection approved by Missoula Water. A retest will be required following the repair of the assembly;

4. Replacement: An assembly may be removed and replaced provided the water use is discontinued until the replacement assembly is installed. All replacement assemblies must be approved by Missoula Water and be commensurate with the degree of hazard involved. The replacement assembly must be tested prior to being put into service.

Section IV - User Supervisor

At each premise where it is necessary (i.e. Schools, industrial facilities, refineries, manufacturing plants, University campuses, etc.) in the opinion of Missoula Water, a user supervisor shall be designated by and at the expense of the water user. This user supervisor shall be responsible for the monitoring of the backflow prevention assemblies and for avoidance of cross-connections. In the event of contamination or pollution of the drinking water system due to a cross connection on the premises, Missoula Water shall be promptly notified by the user supervisor so that the appropriate measures may be taken to overcome the contamination. The water user shall inform Missoula Water of the user supervisor's identity on an annual basis and whenever a change occurs.

Section V - Administrative Procedures

A. Water System Survey

1. Missoula Water may review any request for new services to determine if backflow protection is needed. Plans and specifications must be submitted to Missoula Water upon request for review of possible cross-connection hazards as a condition of service for new service connections. If Missoula Water determines that a backflow prevention assembly is necessary to protect the public water system, the required assembly must be installed before service will be granted. In addition, where multiple water systems exist on the user's premises, pipelines shall be identified by the user to clearly distinguish between the systems. This will be done in a manner acceptable to Missoula Water. Outlets of water systems shall be posted as deemed necessary to protect the potable water supply and health of the public.
2. Missoula Water will conduct surveys of its customers' premises in order to eliminate cross-connections. These surveys will be conducted on a priority basis, generally beginning with those identified as having the highest degree of hazard as outlined in Section 5 of the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research Manual of Cross-Connection Control.
3. Missoula Water may, at its discretion, require an inspection or re-inspection for cross-connection hazards on any premise to which it serves water. Conditions that may warrant re-inspection may include, but are not limited to: change of ownership, change of business/user, addition or replacement of equipment, a backflow incident, etc. Any water user who cannot or will not allow an on premise inspection of his piping system shall be required to install the backflow prevention assembly Missoula Water considers necessary.

B. Customer Notification - Assembly Installation

1. Missoula Water will notify the water user of the survey findings, listing any required corrective actions to be taken. A period of 60 days will be given to complete all corrective actions required, including installation of backflow prevention assemblies.
2. A second notice will be sent to each water user who does not take the required corrective actions prescribed in the first notice within the 60 day period allowed. The second notice will give the water user a two week period to take the required corrective action. If no action is taken within the two week period, Missoula Water may terminate water service to the affected water user until the required corrective actions are taken and inspected by Missoula Water personnel.

C. Customer Notification - Testing and Maintenance

1. Missoula Water will notify each affected water user when it is time for the backflow prevention assembly installed on their service connection to be tested. This written notice shall give the water user 30 days to have the assembly tested. A second notice shall be sent to each user who does not have their backflow prevention assembly tested as prescribed in the first notice within the 30 day period allowed. The second notice will give the water user a two week period to have their backflow prevention assembly tested. If no action is taken within the two week period, Missoula Water may terminate water service to the affected water user until the backflow assembly is tested and/or repaired and the necessary forms are submitted to Missoula Water.

Section VI - Water Service Termination

A. General

1. When Missoula Water encounters water uses that represent a clear and immediate hazard to the public water supply that cannot be immediately abated, Missoula Water may institute the procedure for discontinuing the Missoula Water service.

B. Basis For Termination

Conditions or water uses that create a basis for water service termination shall include, but are not limited to, the following items:

1. Refusal to install a required backflow prevention assembly;
2. Refusal to test or maintain a backflow prevention assembly;
3. Refusal to repair a faulty backflow prevention assembly;
4. Refusal to replace a faulty backflow prevention assembly;
5. Direct or indirect connection between the public water system and a sewer line;
6. Unprotected direct or indirect connection between the public water system and the system or equipment containing contaminants;

7. Unprotected direct or indirect connection between the public water system and an auxiliary water system;
8. A situation which presents an immediate health hazard to the public water supply system.

C. Water Service Termination Procedures

1. For conditions 1, 2, 3, or 4, Missoula Water may terminate service to a customer's premises after two written notices have been sent specifying the corrective action needed and the time period in which it must be done. If no action is taken within the allowed time period, water service may be terminated.
2. Conditions 5, 6, 7, or 8 are deemed an immediate threat to public health and Missoula Water may take the following steps:
 - (a) Make reasonable effort to advise water user of intent to terminate water service;
 - (b) Immediately terminate water supply and lock service valve. The water service will remain inactive until correction of violations has been completed and approved by Missoula Water.

Section VII - Requirements for Certification as a Backflow Prevention Assembly Tester

Each applicant for certification as a tester of backflow prevention assemblies shall meet the requirements of a certified backflow prevention assembly tester as defined by the State of Montana.