

PART 503 – SAFETY

SUBPART A – ENGINEERING ACTIVITIES AFFECTING UTILITIES

§MT503.06 State Laws

(a) Protection of Domestic Water Supply

(1) The NRCS has a responsibility to protect domestic water supplies from contamination by avoidance, or by incorporating cross-connection control features on livestock and irrigation systems. The required type of backflow protection must be commensurate with the potential hazard and the population at risk. All backflow protection assemblies require inspection and testing procedures addressed in the operation and maintenance plan.

(2) Backflow is water flow in reverse direction caused by back siphonage or back pressure. Back siphonage is caused by negative pressure in the piping system, allowing undesirable substances to be drawn into a potable water supply. Negative pressure can be created by a water line repair or break that is lower than the water service point. It could also be caused by lower water main pressure due to high water usage at an off-site location. Back pressure is caused by positive pressure in the piping system, allowing undesirable substances to be forced into a domestic water supply. Positive pressure could be created by booster pumps, chemical injectors, elevation differentials, or heating elements.

(3) Significant professional judgment must be applied in the proper selection of cross-connection control features. The following chart can be used in the selection of backflow protection under various conditions. These assemblies are recognized by state regulatory authorities and are designed to be inspected and tested.

	Reduced Pressure Principal Assembly	Double Check Valve Assembly	Pressure Vacuum Breaker Assembly	Air Gap
Continuous pressure	X	X	X	
Possible Back Pressure	X	X		X
Possible Back Siphonage	X	X	X	X
Nontoxic	X	X	X	X
Toxic (chemicals and pathogens)	X		X	X

(4) Micro-irrigation lines are exposed to fertilizers, herbicides, and pesticides. The following backflow protection devices are acceptable for use; (i) Pressure Vacuum Breaker Assembly, or (ii) Reduced Pressure Principal Assembly. Pressure Vacuum Breakers shall be installed at least 12 inches above the highest point in the irrigation piping. The irrigation system shall be void of booster pumps, chemical injectors, and heating elements that could create back pressure. If these conditions cannot be met, the Reduced Pressure Principal Assembly shall be installed.

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(5) Double Check Valve Assemblies are secure from substances that are objectionable (color, odor, taste), but they are not secure from substances considered to be health hazards such as chemicals and pathogens. Two single check valves in series do not function as a Double Check Valve Assembly. A single check valve is not sufficiently secure or responsive over the full range of reasonable operating pressures to keep out objectionable substances.

(6) A mechanical backflow protection assembly is required when: (i) the improvement taps a domestic water supply, and the livestock watering facility is owned or operated by an outside producer, (ii) the water tank is designed to discharge above the tank rim, and facility maintenance is questionable, or (iii) the supply line to the water tank is designed to discharge below the tank rim.

(7) On livestock watering facilities that tap a domestic water supply, an Air-Gap separation provides an acceptable level of backflow protection, provided the watering facility is owned and operated by the population at risk and the system is well maintained.

(8) If an Air-Gap separation is the only method of backflow protection, the following statement shall be boldly affixed on the first page of the plan drawings. The consumer of the domestic water supply, who should also be the owner of the livestock watering facility, shall acknowledge the necessity and function of the Air-Gap separation with a signature.

"An Air-Gap of at least (insert two times the pipe diameter, one inch minimum) inches is required between the supply line outlet and the top of tank to isolate health hazards from the domestic water supply." Signature _____

(b) Utility Notification

(1) Notification of utilities shall be made through the Utility Notification Center as mandated by Montana Law, MCA Title 69 – Public Utilities and Carriers, Chapter 4 – Utility Lines and Facilities, Part 5 – E Near Underground Facilities.

(2) The excavator shall call the Utility Notification Center at least two full business days before excavation begins to ensure that all publicly-owned underground utilities are marked. The “Call Before You Dig” phone number for Montana (except for Lincoln and Flathead Counties) is 811 or 1-800-424-5555. The “Call Before You Dig” phone number for Flathead and Lincoln Counties is: 1-800-551-8344 (there is no 811 equivalent for this area). The excavator will be held responsible for damages to utilities and property if such notice is not provided. The excavator is the person who actually performs the excavation, soil borings, or similar construction activity and can be the contractor, the landowner, an NRCS employee, or a SCD employee. The landowner is responsible for marking private underground utilities affected by the project. In addition to buried utilities installed by the land owner, there may be additional buried lines for such things as oil fields and the Air Force Missile Control system that might not be located.

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- (3) A warning statement as follows shall be placed on all engineering plans:

“State law and NRCS policy require that the excavator contact the Utility Notification Center at 811 or 1-800-424-5555 or 1-800-551-8344 for Flathead and Lincoln Counties for underground utility locations at least two full business days prior to the start of excavation work.”

(4) NRCS Form MT-ENG-7 shall be used on all construction projects with NRCS technical assistance. The locate ticket number shall be provided by the excavator, documented on the MT-ENG-7, and retained in the NRCS file prior to the commencement of construction inspection by the NRCS. Documentation of the ticket number is recommended, but not required, on projects where the NRCS is not present during construction, or inspection is provided by a non-NRCS technical service provider.

(5) The ticket number is considered a locate confirmation. Documentation of this number reduces the operational risks of the State Conservationist in preventing employee injury and government property damage. If an NRCS employee has reason to believe the ticket number was fabricated to expedite construction, the employee can contact the Utility Notification Center or go on-line to confirm the ticket locate and completion date. In addition, the National Ticket Management System is available at: <http://www.managetickets.com>. Montana is not listed as a state that uses this system but the web site says that it can still help with researching the status of a locate ticket.

(c) Utility Marking and Color Codes

(1) The Utility Notification Center and the Montana NRCS have adopted the American Public Works Association Uniform Color Code for the purpose of marking specific utilities and avoiding confusion. Pink and white are the colors designated for temporary survey marking and proposed excavation limits. Other color codes are listed below:

PINK – Temporary Survey Markings
WHITE – Proposed Excavation Limits or Routes
RED – Electric Power
YELLOW – Gas, Oil, Steam, Petroleum
ORANGE - Communications
BLUE – Potable Water
GREEN – Sewers and Drains.