CHAPTER 7-10-02
EQUIPMENT REQUIREMENTS

Section

7-10-02-01. Antisiphon devices required.

Chemigation may take place in North Dakota, as permitted in statute and rule, only when one of the antisiphon devices of section 7-10-02-02 are installed in an irrigation system.

History: Effective October 1, 1988.
General Authority: NDCC 4.1-35-03
Law Implemented: NDCC 4.1-35-02, 4.1-35-03

7-10-02-02. Allowable antisiphon devices.

One of the following antisiphon devices must be installed as required in this section before chemigation in an irrigation system may take place.

1. **Check valve with vacuum relief and low pressure drain.** A corrosion-resistant check valve must be located between the water supply pump discharge outlet at the point of chemical injection. Location on the suction side of the water pump is not allowed. The check valve must be either spring loaded with a chemically resistant sealing surface or otherwise capable of preventing leakage. The direction of flow must be clearly indicated on the outside of the device. The vacuum relief valve must be installed on top of the irrigation pipe on the inlet side of the check valve. The vacuum relief valve must be a minimum of three-fourths inch [19.05 millimeters] in diameter. The low pressure drain must be located on the inlet side of the check valve at the lowest point. The drain must be mounted in the pipe in such a way that any check valve leakage enters the drain rather than flowing on toward the water supply. The drain must be at least three-fourths inch [19.05 millimeters] in diameter with a closing pressure of at least one pound per square inch [7 kilopascals] and not exceeding five pounds per square inch [35 kilopascals]. If the drain is within twenty feet [6.10 meters] of the water source, the system must provide a means to carry the drainage away or the surface must be graded to assure drainage away from the water source. Manual valves may not be located on the outlet side of the drain.

2. **Reduced pressure principle device.** The reduced pressure principle device must consist of two independently acting check valves, together with a pressure differential relief valve that is located between the two check valves. This device must be located between the pump discharge outlet and the point of chemical injection. The differential relief valve must have a minimum clearance of twelve inches [30.50 centimeters] above the ground level or grade.

3. **Double check valve.** The double check valve assembly must be composed of two single, independently acting check valves. The double check valve must be located between the pump discharge outlet and the point of chemical injection.

4. **Airgap.** An airgap must be a physical separation between the free flowing discharge end of a water pipeline and an open or nonpressurized receiving vessel. To have an acceptable airgap,

the end of the discharge pipe must be located a distance of at least twice the diameter of the pipe above the topmost rim of the receiving vessel. In no case can this distance be less than one inch [2.54 centimeters]. The airgap must be located between the pump discharge outlet and the point of chemical injection.

5. **Other acceptable devices.** Other equipment utilizing new technology or other backflow prevention devices as specifically approved in writing by the commissioner of agriculture may be used.

History: Effective October 1, 1988.
General Authority: NDCC 4.1-35-03
Law Implemented: NDCC 4.1-35-02, 4.1-35-03

7-10-02-03. Inspection port.

An inspection port of at least four inches [101.6 millimeters] in diameter must be provided to check for malfunctioning of all antisiphon devices. The inspection port can be combined with a mounting of vacuum relief. If an airgap is used, as required by subsection 4 of section 7-10-02-02, the system is exempt from the requirement of an inspection port.

History: Effective October 1, 1988.
General Authority: NDCC 4.1-35-03
Law Implemented: NDCC 4.1-35-02, 4.1-35-03

7-10-02-04. Chemical injection port location.

The chemical injection port into the irrigation line must be located downstream of the antisiphon device.

History: Effective October 1, 1988.
General Authority: NDCC 4.1-35-03
Law Implemented: NDCC 4.1-35-02, 4.1-35-03

7-10-02-05. Backflow prevention in the chemical line.

A spring loaded, chemically resistant check valve having a minimum opening pressure of ten pounds per square inch [69 kilopascals] must be located at the injection port of the irrigation system.

History: Effective October 1, 1988.
General Authority: NDCC 4.1-35-03
Law Implemented: NDCC 4.1-35-02, 4.1-35-03

7-10-02-06. Pressure sensor in the irrigation line.

A functional pressure switch must be in the irrigation line. The device must shut down the injection pump in the event flow is lost in the irrigation line.

History: Effective October 1, 1988.
General Authority: NDCC 4.1-35-03
Law Implemented: NDCC 4.1-35-02, 4.1-35-03

7-10-02-07. Interlock devices.

The irrigation pumping plant and chemical injection units must have a functional interlocking mechanism that will ensure that, in the event of irrigation pump shutdown, the injection units will shut down.

History: Effective October 1, 1988.
General Authority: NDCC 4.1-35-03
Law Implemented: NDCC 4.1-35-02, 4.1-35-03

7-10-02-08. Chemical injection pump.

The chemical injection pump must be effectively designed and constructed of materials that are compatible with the chemicals being injected into the irrigation system. The pump must be effectively designed and constructed to prevent any leakage. The pump must have a means of being calibrated for accurate chemical metering. The pump must be capable of being fitted with a system interlock.

History: Effective October 1, 1988.
General Authority: NDCC 4.1-35-03
Law Implemented: NDCC 4.1-35-02, 4.1-35-03