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**IDAPA 02
TITLE 03
Chapter 04**

02.03.04 - CHEMIGATION RULES

000. LEGAL AUTHORITY.

This chapter is adopted under the legal authority of Section 22-1403 Idaho Code.

(3-20-97)

001. TITLE AND SCOPE.

The title of this chapter is Idaho Department of Agriculture Rules Governing Chemigation. This chapter has the following scope: to govern licensing and responsibilities for chemigation; signage for chemical usage; shut down requirements; pressure switch, chemical injection, metering pump, system interlock requirements, and wind speed precautions; irrigation system connections; flood (basin) furrow or border chemigation; drip (trickle) chemigation; anti-pollution devices; irrigation check line valve model certification; use of Anhydrous Ammonia; variances; and to include a grandfather clause.

(3-20-97)

002. WRITTEN INTERPRETATIONS.

There are no written interpretations of these rules.

(3-20-97)

003. ADMINISTRATIVE APPEAL.

There is no provision for administrative appeals before the Idaho Department of Agriculture under this chapter. Hearing and appeal rights are pursuant to Title 67, Chapter 52, Idaho Code.

(3-20-97)

004. DEFINITIONS.

The Idaho Department of Agriculture adopts the definitions set forth in Section 22-1401, Idaho Code, and the following definitions.

(3-20-97)

01. Air Gap. A complete physical break between the outlet end of a fill pipe or other conduit and the discharged substance twice the inside diameter of the pipe or conduit. (11-1-90)
02. Check Valve. A certified device designed and constructed to close a water supply pipeline, chemical injection line, or other conduit in a chemigation system to prevent reverse flow in that line. (11-1-90)
03. Chemigator. Any person engaged in the application of chemicals through any type of irrigation system. (11-1-90)
04. Department. Idaho Department of Agriculture. (11-1-90)
05. Domestic Water Supply System. Any system providing water for human use. (11-1-90)
06. Float Switch. A switch activated by a float at the surface of a liquid. (11-1-90)
07. Flow Rate. The weight or volume of flowable material per unit of time. (11-1-90)
08. Inspection Port. An orifice or other viewing device from which the low pressure drain and check valve may be observed. (11-1-90)
09. Label or Labeling. The written, printed, or graphic material on or attached to the chemical or device or any of its container or wrappers. It would also include all other written, printed or graphic materials that accompanies a chemical or device at any time. (11-1-90)
10. Pressure Rating. The estimated maximum pressure that can be continuously exerted with a high degree of certainty that a failure will not occur. (11-1-90)
11. Pressure Switch. A device which will stop the chemical injection pump when the water pressure decreases to the point where chemical distribution is adversely affected. (11-1-90)
12. Quick Coupling. Any mechanism which allows rapid access to the inspection port and does not require special tools. (11-1-90)

13. Reduced Pressure Zone Backflow Preventer (RPZ). A backflow prevention device consisting of two independently acting spring-loaded check valves separated by a spring-loaded differential pressure relief valve. This device shall be installed as a unit between two tightly closing shut off valves and having suitable connections for testing. (11-1-90)

14. Sensitive Areas. Areas such as residential areas, labor camps, businesses, day care centers, hospitals, inpatient clinics, nursing homes or any public areas such as schools, parks, playgrounds or other public facilities not including public roads. (11-1-90)

15. System Interlock. A functional interlocking mechanism used to link irrigation pumps and chemical injection units, other pumps or supply tanks so designed that in the event of irrigation pump malfunction or failure, shutdown of the chemical injection units will occur. (11-1-90)

16. Venturi Injection System. A chemical injection system which operates on the Venturi principle, creating a differential pressure or vacuum. (3-20-97)

17. Vacuum Relief Valve. A device to automatically relieve or break vacuum. (11-1-90)

18. Working Pressure. The internal operating pressure of a vessel, tank or piping used to hold or transport liquid. (11-1-90)

005. FINDINGS.

These rules are promulgated pursuant to Section 67-5226, Idaho Code, in compliance with the deadlines in the governing law, Title 22, Chapter 14, Idaho Code. The rule changes are necessitated by the passage of H.B. 453 and H.B. 454 in February 1996. The rules confer a benefit by combining chemigator licensing with pesticide applicator licensing, simplifying the recertification record keeping and providing a uniform two year license and recertification period for all licenses. (3-20-97)

006. -- 049. (RESERVED).

050. LICENSING.

01. Chemigator License Requirements. Applicants who wish to obtain a private applicator license with a chemigation category shall: (3-20-97)

a. Fill out an application prescribed by the Department; (3-20-97)

b. Pass the Chemigation initial examination with a minimum score of seventy percent (70%); and (3-20-97)

c. Pay a license fee as prescribed by the Pesticide Use and Application Rules, IDAPA 02.03.03.200.04. (3-20-97)

02. Chemigator Category Renewal Requirements. In order for a private applicator's license to be renewed in the chemigation category, the license holder shall: (3-20-97)

a. Fill out an application prescribed by the Department; (3-20-97)

b. Complete the recertification provisions of the Pesticide Use and Application Rules, IDAPA 02.03.03.050.02, for recertification of a private applicator's license. (3-20-97)

c. Pay a license fee as prescribed by the Pesticide Use and Application Rules, IDAPA 02.03.03.200.04, for a chemigation category on a private applicator's license. (3-20-97)

051. -- 999. (RESERVED).

100. GENERAL REQUIREMENTS.

01. Chemigator Responsibilities. The chemigator shall be responsible for assuring that the irrigation system and chemigation equipment functions properly. (11-1-90)

02. Toxicity Category I Product Requirements. If the pesticide label allows for chemigation and is a toxicity category I product (those with the label signal word DANGER), the chemigator shall comply with the following requirements: (11-1-90)

- a. Posting of area to be chemigated is required when: (11-1-90)
 - i. Any part of a treated area is within three hundred (300) feet of a sensitive area; or (11-1-90)
 - ii. When the chemigation area is open to the public such as golf courses or retail greenhouses. (11-1-90)
- b. Posting shall conform to the following requirements: (11-1-90)
 - i. The treated area shall be posted with signs at all normal points of entry and along likely routes of approach from sensitive areas. (11-1-90)
 - ii. When there are no usual points of entry, signs shall be posted in the treated areas and in any other location affording maximum visibility to sensitive areas. (11-1-90)
 - iii. The printed side of the sign should face away from the treated area toward the sensitive area. The sign shall be printed in English and Spanish. (11-1-90)
 - iv. Signs shall be posted prior to application and shall remain posted until the re-entry period has expired. (11-1-90)
 - v. Signs may remain in place indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting period. (11-1-90)
- c. All words shall consist of letters at least two and one half (2.5) inches tall and all letters and the symbol shall be a color which sharply contrasts with the immediate background. At the top of the sign shall be the words "KEEP OUT," followed by an octagonal stop-sign symbol at least eight (8) inches in diameter containing the word "STOP." Below the symbol shall be the words "PESTICIDES IN IRRIGATION WATER." (11-1-90)
- d. Posting required for chemigation does not replace other posting and re-entry interval requirements for farm worker safety. (11-1-90)

03. Chemical Injection Line Shut Down Requirements. The chemical injection line shall contain one of the following options to shut down the chemical injection unit when chemical distribution is adversely affected: (11-1-90)

- a. A functional automatic quick-closing check valve and a functional normally closed solenoid operated valve connected to the system interlock; or (11-1-90)
- b. A functional spring-loaded check valve with a minimum of ten (10) psi opening (cracking) pressure plus one (1) psi per one (1) foot of elevation between the chemical supply tank and the point of chemical injection; or (11-1-90)
- c. A functional automatic quick-closing check valve and a functional normally closed hydraulically operated check valve. The hydraulically operated check valve shall be connected to the main water line such that the valve only opens when the main water line is adequately pressurized; or (11-1-90)

d. A functional automatic quick-closing check valve and a functional vacuum relief valve located in the chemical injection line between the positive displacement chemical injection pump and the chemical injection line check valve. This alternative is appropriate only for those chemigation systems using a positive displacement chemical injection pump and is not for use with Venturi injection systems. This valve shall be elevated at least twelve (12) inches above the highest fluid level in the chemical supply tank and shall be the highest point in the injection line. The valve shall open at six (6) inches water vacuum or less and shall be spring-loaded or otherwise constructed such that it does not leak on closing. It shall prevent leakage from the chemical supply tank on system shutdown. The valve shall be constructed of chemically resistant materials; or (11-1-90)

e. For surface irrigation or open pipe (low pressure) open ditch irrigation systems which do not use a chemical injection pump, a positive shut off device must be installed on the chemical injection line to prevent backflow into the chemical supply tank and prevent seepage into the ditch or pipe from the chemical supply tank; or (11-1-90)

f. Any other option approved by the department. (11-1-90)

04. Pressure Switch Requirement. In pressurized water systems, the irrigation line or water pump shall include a functional pressure switch. (11-1-90)

05. Chemical Injection Systems Requirements. All chemical injection systems, except for flood (basin) furrow or border fertigation through a gravity flow system, shall use: (11-1-90)

a. A metering pump such as a positive displacement injection pump effectively designed and constructed of materials that are compatible with the chemical and fitted with a system interlock; or (11-1-90)

b. Non positive metering pumps (Venturi systems) including those inserted into the main water line, those installed in a bypass system and those bypass systems boosted with an auxiliary water pump with the following qualifications: Booster or auxiliary water pumps shall be connected with the system interlock. Venturis shall be constructed of chemically resistant material. The line from the chemical supply tank to the Venturi shall contain a functional automatic quick-closing check valve to prevent the flow of liquid back to the chemical supply tank. This valve shall be located immediately adjacent to the Venturi chemical inlet. The same supply line shall also contain either a functional normally closed solenoid operated valve connected to the system interlock; or a functional normally closed hydraulically operated valve which opens only when the main water line is adequately pressurized. In bypass systems, as an option to placing both valves in a line from chemical supply tank, the check valve may be installed in the bypass immediately upstream of the Venturi water inlet and either the normally closed solenoid or hydraulically operated valve may be installed immediately downstream of the Venturi water outlet. (3-20-97)

06. System Interlock Requirements. In every chemigation system, there shall be a functional system interlock designed and installed to automatically shut down the chemical injection unit when chemical distribution is adversely affected. The system interlock shall: (11-1-90)

a. Connect the water supply pump and the chemical injection unit; or (11-1-90)

b. Connect the irrigation line pressure switch and the chemical injection unit if there is no water supply pump and the system is pressurized; or (11-1-90)

c. Connect the float switch and the chemical injection unit if there is no water pump and the system is not pressurized. (11-1-90)

07. Wind Speed Precautions. Do not apply when wind speed favors drift beyond the area intended for treatment or when chemical distribution is adversely affected. (11-1-90)

101. -- 149. (RESERVED)

150. IRRIGATION SYSTEM CONNECTED TO A DOMESTIC WATER SUPPLY SYSTEM -- ADDITIONAL REQUIREMENTS.

Any irrigation system used for chemical application shall not be connected to a domestic water supply system unless the chemigator verifies that the system complies with the following requirements: (11-1-90)

01. Pressure Zone Backflow Preventer. The irrigation system shall contain a functional reduced pressure zone backflow preventer (RPZ). (11-1-90)

02. Option to RPZ. As an option to the RPZ, the water from the domestic water supply system should be discharged into a reservoir tank prior to the chemical injection. There shall be an air gap between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank at least twice the inside diameter of the fill pipe. Chemical injection shall not occur upstream of the air gap. In addition, the appropriate chemigation system requirements specified in Sections 151, 152, 153, and 154 shall be complied with. (3-20-97)

151. SPRINKLER CHEMIGATION -- ADDITIONAL REQUIREMENTS.

If the pesticide label allows for sprinkler chemigation or if fertilizer will be applied through the sprinkler irrigation system, the chemigator shall verify that the system complies with the following requirements: (11-1-90)

01. Line Check Valve Requirement. The system shall contain a functional irrigation line check valve, an automatic low pressure drain, and an inspection port. In addition, a vacuum relief valve or a combination air and vacuum relief valve is required; or (11-1-90)

02. Gooseneck. A gooseneck pipe loop. (11-1-90)

152. FLOOD (BASIN) FURROW OR BORDER CHEMIGATION -- ADDITIONAL REQUIREMENTS.

If fertilizer will be applied by flood (basin) furrow or border chemigation through a gravity flow system, the chemigator shall verify that the system complies with the following requirements: The fertilizer shall be metered into the water at the head of the field downstream of a hydraulic discontinuity such as a drop structure to decrease potential for water source contamination from backflow if water flow stops. (11-1-90)

153. PRESSURED FLOOD (BASIN) FURROW OR BORDER, ETC. -- ADDITIONAL REQUIREMENTS.

If the pesticide label allows for or if fertilizer will be applied by flood (basin) furrow or border chemigation through a pressurized water system, the chemigator shall verify that the system complies with the following requirements: (11-1-90)

01. Line Check Valve Requirement. The system shall contain a functional irrigation line check valve, an automatic low pressure drain and an inspection port. In addition, a vacuum relief valve or a combination air and vacuum relief valve is required; or (11-1-90)

02. Gooseneck. A gooseneck pipe loop. (11-1-90)

154. DRIP (TRICKLE) CHEMIGATION -- ADDITIONAL REQUIREMENTS.

If the pesticide label allows for or if fertilizer shall be applied by drip (trickle) chemigation, the chemigator shall verify that the system through which the chemical is being applied complies with the following requirements: (11-1-90)

01. Line Check Valve Requirement. The system shall contain a functional irrigation line check valve, an automatic low pressure drain and an inspection port. In addition, a vacuum relief valve, or a combination air and vacuum relief valve is required; or (11-1-90)

02. Gooseneck. A gooseneck pipe loop. (11-1-90)

155. -- 199. (RESERVED).

200. ANTI-POLLUTION DEVICES: EQUIPMENT, PERFORMANCE AND INSTALLATION STANDARDS.

The following are equipment, performance, and installation standards for antipollution devices. Equipment manufacturers shall provide to the Department of Agriculture verification that the equipment meets the standards. If the equipment meets the standards, it shall be placed on the department's list of approved chemigation equipment.

(11-1-90)

01. Automatic Low Pressure Drain. (11-1-90)
 - a. Shall be installed upstream of the irrigation line check valve at the lowest point of the horizontal water supply pipeline. (11-1-90)
 - b. The low pressure valve shall not extend into the horizontal pipe beyond the inside surface of the bottom of the pipe. (11-1-90)
 - c. Shall be at least three-fourths (3/4) inch in diameter with a closing pressure of not less than five (5) psi. (11-1-90)
 - d. Shall use a corrosion resistant tube, pipe, or similar conduit to discharge a solution at least twenty (20) feet down slope from the irrigation water source and away from any other water sources. At the discharge point there shall be an air gap. (11-1-90)
 - e. Shall not have any valves located on the outlet side of the drain tube. (11-1-90)
 - f. Shall have a collection reservoir, depression, dam, or similar structure approved by the department which collects liquid at the drain. (11-1-90)
02. Chemical Injection Line Check Valve. (11-1-90)
 - a. Shall be located between the chemical injection pump and the point of chemical injection into the irrigation line. (11-1-90)
 - b. Shall be made of chemically resistant material. (11-1-90)
 - c. Shall prevent irrigation water under operating pressure from entering the chemical injection line. (11-1-90)
 - d. Shall prevent leakage from the chemical supply tank on system shut down. (11-1-90)
03. Gooseneck Pipe Loop. (11-1-90)
 - a. Shall be located immediately downstream of the irrigation water pump. (11-1-90)
 - b. The bottom side of the pipe at the loop apex shall be at least twenty-four (24) inches above the highest sprinkler or other type of water emitting device. (11-1-90)
 - c. Shall contain either a vacuum relief or combination air and vacuum relief valve at the apex of the pipe loop; AND if the water pump is portable and the apex is a straight, horizontal section of pipe, the pipe shall be level. (11-1-90)
 - d. The chemical injection port shall be located downstream of the apex of the pipe loop and at least six (6) inches below the bottom side of the pipe at the loop apex. (11-1-90)
 - e. Shall not be allowed when pumping from a groundwater source. (11-1-90)
04. Inspection Port. (11-1-90)

- a. Shall be located on the pipeline between the irrigation pump and the irrigation pipeline check valve directly above the low pressure drain. (11-1-90)
- b. Shall have a minimum diameter opening of four inches from which the check valves and low pressure drain shall be visible. (11-1-90)
- c. Shall be quick coupling. (11-1-90)
- 05. Irrigation Line Check Valve. (11-1-90)
 - a. Shall consist of at least a single check valve. (11-1-90)
 - b. Shall be located in the pipeline between the irrigation pump and the point of chemical injection into the irrigation pipeline, and downstream from a vacuum relief valve and automatic low pressure drain. (11-1-90)
 - c. Shall be of heavy duty construction with all materials resistant to corrosion or protected to resist corrosion. (11-1-90)
 - d. Shall be spring-loaded with a chemically resistant and resilient seal that provides a watertight seal against reverse flow. (11-1-90)
 - e. The check valve or valve assembly shall be labeled with the following information: (11-1-90)
 - i. Manufacturer's name and model. (11-1-90)
 - ii. Working pressure in pounds per square inch (psi). (11-1-90)
 - iii. Maximum flow rate in gallons per minute. (11-1-90)
 - iv. Direction of flow. (11-1-90)
 - f. Shall not consist of metal to metal seal surfaces. (11-1-90)
 - g. Shall be rated at a pressure equal to or greater than the system working pressure. (11-1-90)
 - h. Shall be positioned and oriented according to manufacturer specifications to ensure proper functioning. (11-1-90)
- 06. Irrigation Line Pressure Switch. A low pressure switch shall be installed in the irrigation pipeline. (11-1-90)
- 07. Reduced Pressure Zone Backflow Preventer (RPZ). (11-1-90)
 - a. Shall be located on the irrigation pipeline between the water supply pump and the point of chemical injection, and downstream from any domestic water supply diversion point. (11-1-90)
 - b. Shall consist of two (2) independently acting spring-loaded check valves separated by a spring-loaded differential pressure relief valve. This device shall be installed as a unit between two (2) tightly closing shut off valves. During normal operation the pressure between the two (2) check valves is maintained at a lower pressure than the supply pressure. If either check valve should leak, the differential pressure relief valve shall maintain a pressure differential of not less than two (2) psi between the supply pressure and the zone between the two (2) check valves by discharging water to the atmosphere. (3-20-97)
 - c. Shall pass a performance test conducted by the University of Southern California Engineering Center or other department-approved testing facility; or meet the American Water Works Association (AWWA) C-509 standard or an equivalent, department-approved test. (11-1-90)

08. Solenoid Operated Valve. (11-1-90)
- a. Shall normally be closed. (11-1-90)
- b. Shall be located on the intake side of the injection pump. (11-1-90)
- c. Shall only open when there is adequate pressure in the irrigation line to insure uniform chemical distribution. (11-1-90)
09. Vacuum Relief Valve. (11-1-90)
- a. Shall be located on top of the horizontal irrigation pipeline on the upstream side of the check valve. (11-1-90)
- b. Shall have a total (individually or combined) orifice size of at least three-fourths (3/4) inch diameter for a four (4) inch pipe, a one (1) inch diameter for a five (5) to eight (8) inch pipe, a two (2) inch diameter for a nine (9) to eighteen (18) inch pipe, and a three (3) inch diameter for a nineteen (19) inch and greater pipe. (11-1-90)

201. -- 249. (RESERVED).

250. IRRIGATION LINE CHECK VALVE MODEL CERTIFICATION.

The manufacturer of the valve assembly shall provide verification to the director that the valve model has been tested and certified by an independent laboratory as meeting the following leakage test criteria: (11-1-90)

01. Check Valve. A check valve shall withstand for one (1) minute without leakage at joints or at the valve seat an internal hydrostatic pressure of two (2) times the rate of working pressure of the valve. (3-20-97)

02. Leakage. A check valve shall withstand for sixteen (16) hours without leakage at the valve seat an internal hydrostatic pressure equivalent to the head of a column of water five (5) feet (1.5m) high retained within the downstream portion of the valve body. No leakage shall occur as evidenced by wetting of paper placed beneath the valve assembly. This test is to be conducted with the valve in both the horizontal and vertical position if intended for such use. (3-20-97)

251. -- 299. (RESERVED).

300. ANHYDROUS AMMONIA.

Anhydrous ammonia applications are exempt from the requirements of these rules, except for Section 152. (3-20-97)

301. -- 309. (RESERVED).

310. VARIANCES.

The Department may grant variances with such conditions and safeguards as it determines are necessary to prevent contamination or pollution of the waters of this state. Issuance of variances shall not relieve the recipient from compliance with all other responsibilities under the chemigation act and rules. Such variances may be granted upon receipt of a verified application from the owner or occupant of the property affected. The application will state fully the grounds of the application and the facts relied upon. Upon the Department's further investigation, if certain antipollution devices otherwise required by these rules or the chemigation act, are not necessary or consequences inconsistent with the rules or act, such variances may be granted. (3-20-97)

311. -- 319. (RESERVED).

320. GRANDFATHER CLAUSE.

Persons who, on or before November 1, 1990, installed antipollution devices which complied with the Environmental Protection Agency Standards or the Department of Agriculture's interim chemigation rules shall not be required to change their chemigation equipment to comply with these rules. However, all chemigation equipment modifications made after November 1, 1990 shall comply with the equipment requirements. (3-20-97)

321. -- 999. (RESERVED).