

1 Department of Agriculture

2

3 Adopted Permanent Rules Relating to Pesticide Chemigation Safety

4

5 Rules as Adopted

6 1505.2000 DEFINITIONS.

7 Subpart 1. **Scope.** The definitions in this part and
8 Minnesota Statutes, section 18B.01 apply to parts 1505.2000 to
9 1505.2070.

10 Subp. 2. **Anti-pollution device.** "Anti-pollution device"
11 means mechanical equipment used to reduce the hazard to the
12 environment because of chemigation and includes, but is not
13 limited to, interlock, check valve, flow interrupter, vacuum
14 relief device, automatic low pressure drain, and reduced
15 pressure zone backflow preventer.

16 Subp. 3. **Automatic low pressure drain valve.** "Automatic
17 low pressure drain valve" means a self-activating device
18 effectively designed and constructed to drain that portion of an
19 irrigation pipeline or conduit whose contents could potentially
20 enter the water supply when operation of the irrigation system
21 pumping plant fails or is shut down.

22 Subp. 4. **Calibration device.** "Calibration device" means
23 equipment designed to determine the rate of chemical injection
24 into the irrigation system.

25 Subp. 5. **Check valve.** "Check valve" means a device
26 effectively designed and constructed to provide a positive
27 (absolute) closure of an irrigation pipeline or conduit or
28 pesticide injection line that effectively prohibits the flow of
29 material or liquid in the opposite direction from that desired
30 when operation of the irrigation system pumping plant or
31 pesticide injection unit fails or is shut down.

32 Subp. 6. **Chemigation.** "Chemigation" means the process of
33 applying pesticides to land or crops including, but not limited
34 to, agricultural, nursery, turf, golf course, or greenhouse
35 sites in or with irrigation water obtained from any source of

1 ground or surface water during the irrigation process.

2 Subp. 7. **Chemigation system.** "Chemigation system" means a
3 device or combination of devices having a hose, pipe, or other
4 conduit that connects directly to a source of ground or surface
5 water, through which a mixture of water and pesticides are drawn
6 and applied to land, crops, or plants. The term does not
7 include a hand-held, hose-end sprayer or other similar device
8 that is constructed so that an interruption of water flow
9 automatically prevents or precludes backflow to the water source.

10 Subp. 8. **Flow interrupter.** "Flow interrupter" means a
11 device effectively designed and constructed to provide positive
12 (absolute) interruption or secession of material or liquid flow
13 in either direction upon pesticide injection unit shutdown or
14 failure.

15 Subp. 9. **Injection unit.** "Injection unit" means a
16 chemical metering pump or device that withdraws the pesticide
17 from a supply tank and injects the pesticide into the irrigation
18 system during a chemigation operation and that is effectively
19 designed and built of materials that are compatible with the
20 pesticide and capable of being interlocked with the irrigation
21 system.

22 Subp. 10. **Interlock.** "Interlock" means the arrangement or
23 interconnection of irrigation pumps and pesticide injection
24 units, other pumps, or supply tanks so that in the event of a
25 component malfunction or failure, shutdown of all pumps will
26 occur.

27 Subp. 11. **Irrigation.** "Irrigation" means the act of
28 supplying water to land, crops, or plants by means of pipes,
29 hoses, sprinklers, drippers, ditches, furrows, or other devices
30 that are connected directly to a source of ground or surface
31 water.

32 Subp. 12. **Operating chemigation equipment.** "Operating
33 chemigation equipment" includes, but is not limited to:

34 A. preparing the solution and filling the pesticide
35 supply container tank;

36 B. calibrating injection equipment;

1 C. starting and stopping equipment when injection of
2 chemicals is involved; and

3 D. supervising the chemigation equipment to assure
4 its safe operation.

5 Subp. 13. **Reduced pressure zone backflow preventer.**

6 "Reduced pressure zone backflow preventer" means a device
7 designed to prevent backflow consisting of two spring-loaded
8 check valves with an intermediate reduced pressure zone that
9 drains to the atmosphere by a relief valve, with a reduced
10 pressure maintained in the intermediate zone by means of a
11 pressure differential valve.

12 Subp. 14. **Supervision.** "Supervision" means the direct
13 management of the chemigating system during its operation when
14 chemicals are being applied.

15 Subp. 15. **Vacuum relief valve.** "Vacuum relief valve"
16 means a device effectively designed and built to automatically
17 relieve or break vacuum in an irrigation pipeline or conduit due
18 to system failure or shutdown.

19 Subp. 16. **Water supply.** "Water supply" means a source of
20 water that is connected to a single irrigation system such as a
21 single well, group of wells, dug pit, lake, river, stream, or
22 public water supply system.

23 1505.2010 REGISTRATION.

24 Subpart 1. **Permit required.** An owner or operator of a
25 chemigation system shall obtain a chemigation permit before
26 applying pesticides through the irrigation equipment. The
27 commissioner has 45 days to review and approve the application
28 or advise the applicant in writing of an unsatisfactory review
29 and detail all necessary revisions.

30 Subp. 2. **Application.** An applicant for a chemigation
31 permit shall submit an application on forms supplied by the
32 commissioner. The application must include, but is not limited
33 to:

34 A. the name, address, private applicator
35 certification number, and telephone number of the owner or

1 operator to whom a permit is to be issued;

2 B. a diagram or description for the irrigation system
3 showing the use of anti-pollution devices;

4 C. a diagram showing devices and practices for
5 preventing surface runoff and handling accumulations due to
6 runoff;

7 D. a plan for use of containment relating to
8 pesticide storage sites and supply tanks at the chemigation
9 site, to be reviewed and approved by the commissioner;

10 E. the number and location, by legal description, of
11 well heads that may be involved in the chemigation process, the
12 location of surface water supply withdrawal points, and the
13 location of the public water supply;

14 F. a copy of the owner's or operator's Department of
15 Natural Resources water appropriation permit; and

16 G. a time table for the routine inspection planned
17 for the chemigation system.

18 Subp. 3. **Permit term; fee.** The application fee for an
19 initial chemigation user's permit established by Minnesota
20 Statutes, section 18B.08, subdivision 4, must be submitted with
21 the initial application. A chemigation user's permit must be
22 renewed each year upon completing an application form and an
23 "annual use report" form provided by the commissioner. Prior to
24 changing any part of the permitted system, a revised application
25 form must be submitted. The commissioner shall have 45 days to
26 review and approve or deny the application.

27 Subp. 4. **Expedited initial conditional permit.** An owner
28 or operator of a chemigation system wishing to expedite the
29 chemigation initial permit process shall submit an application
30 for a conditional permit on forms provided by the commissioner
31 and include the initial fee required by Minnesota Statutes,
32 section 18B.08, subdivision 4. The owner or operator shall also
33 include with the application a letter describing the need for
34 expediting the permit. The commissioner has five business days
35 in which to review and approve or deny the conditional permit.
36 The conditional permit is valid for 40 days after which the

1 commissioner shall issue or deny a full year chemigation user's
2 permit.

3 1505.2020 ANTI-POLLUTION DEVICES AND PROCEDURES.

4 Subpart 1. Chemigation through irrigation systems.

5 A. Pesticides may be used through irrigation systems
6 not connected to public water supply systems for chemigation
7 purposes, if the pesticide is labeled for this method of
8 application.

9 B. Pesticides may be used through irrigation systems
10 connected to a public water supply system if the pesticide is
11 labeled for this method of application.

12 C. All chemigation systems must be calibrated to
13 deliver labeled rates and must be fitted with functional
14 anti-pollution devices as detailed in subpart 4 that prevent the
15 backflow of pesticides or pesticide-water mixtures into water
16 supplies during times of irrigation system failure or equipment
17 shutdown.

18 Subp. 2. Pesticide supply tank. A pesticide supply tank
19 used to supply ~~the an~~ injection system ~~for-a-single-injection~~
20 during chemigation may be located no closer than ~~±5~~ 20 feet from
21 the irrigation water supply, ~~such-as-a~~ or well head, unless
22 positioned in ~~an-approved~~ a containment unit as specified in
23 subpart 3. Pesticide preparation or filling areas ~~and-pesticide~~
24 ~~storage-sites~~ may not be located within 150 feet of the water
25 supply. The chemical injection point must be located down line
26 from all anti-pollution devices located in the supply pipeline.

27 Subp. 3. Storage; supply; containment. Pesticide supply
28 tanks and pesticide storage sites ~~in-use-longer~~ used for more
29 than three consecutive months ~~at-the-chemigation-site-and-any~~
30 ~~pesticide-supply-container-used~~ in conjunction with the a
31 chemigation system must be provided with a means of
32 containment ~~that-will~~ when located within 150 feet of the
33 irrigation water supply, or well head in order to prevent
34 unreasonable adverse effects on the environment in the event of
35 a spill or leak. Containment capacity must be 125 percent of

1 the supply container. ~~Materials-used-for-containment-must-be~~
2 ~~compatible-with-the-pesticide-stored-in-them.~~ The containment
3 unit must be compatible with the stored pesticide and must be
4 designed to withstand a full hydrostatic head of discharged
5 liquid. The containment unit may only be constructed of
6 commissioner-approved synthetic materials, stainless steel,
7 reinforced concrete, or reinforced masonry. The containment
8 unit may be portable.

9 Subp. 4. Anti-pollution devices; valves. Anti-pollution
10 devices and valves for irrigation systems used for chemigation
11 purposes must be designed and built of materials suitable for
12 those purposes, including compatibility, and must be kept
13 functional during chemigation application. The devices must
14 comply with items A to H G, and may be installed as portable
15 devices for use on other registered chemigation or irrigation
16 systems. Portable devices are not allowed for use for systems
17 connected to public water supply systems.

18 A. A reduced pressure zone backflow preventer or two
19 check valves in series must be provided for systems not
20 connected to a public water supply. The device must be located
21 in the irrigation system supply pipeline between the irrigation
22 system supply pump and the point of injection of the pesticide.
23 ~~if-two-check-valves-are-used, each-check-valve-must-be~~
24 ~~immediately-preceded-in-the-system-by-a-vacuum-relief-valve-and~~
25 ~~an-automatic-low-pressure-drain-valve.---Check-valves, when~~
26 ~~installed, must be level, except that a deviation of not more~~
27 ~~than ten degrees from the horizontal is permitted.~~

28 B. A reduced pressure zone backflow preventer must be
29 provided for chemigation systems connected to a public water
30 supply. The reduced pressure zone backflow preventer must be
31 located in the irrigation supply line between the irrigation
32 system supply pump and the point of injection of the pesticide.

33 ~~(1)-~~A The reduced pressure zone backflow preventer must be
34 certified by a recognized testing laboratory acceptable to the
35 commissioner. The commissioner shall keep a list of acceptable
36 testing laboratories and manufacturers models.

1 (2)-A-check-valve-must-be-of-heavy-duty
2 construction-with-all-materials,including-internal-parts,
3 resistant-to-corrosion-or-protected-to-resist-corrosion.--It
4 must-be-quick-closing-by-spring-action-and-tight-sealing-so-that
5 no-leakage-occurs-at-joints-or-the-valve-seat-when-subjected-to
6 an-internal-hydrostatic-pressure-test-of-at-least-two-times-the
7 rated-manufacturer's-working-pressure-of-the-valve-for-one
8 minute,--and-when-subjected-to-an-internal-hydrostatic-pressure
9 equivalent-to-the-head-of-a-column-of-water-five-feet-high
10 retained-within-the-downstream-portion-of-the-valve-body-for-16
11 hours,--as-evidenced-by-independent-laboratory-testing.

12 Check-valves-must-be-of-a-manufacturer-and-model
13 specifically-approved-by-the-commissioner-for-use-in-chemigation
14 systems.--A-check-valve-of-a-type-that-has-not-received-prior
15 approval-by-the-commissioner-may-not-be-used-until-its-adequacy
16 has-been-demonstrated-to-the-satisfaction-of-the-commissioner
17 and-approval-granted.

18 C.--When-required-to-be-provided-by-item-A,--a-vacuum
19 relief-valve-must-be-installed-on-the-top-of-the-horizontal
20 irrigation-pipeline-on-the-supply-side-of-each-check-valve.--The
21 valve-must-have-an-orifice-size-of-at-least-3/4-inch-diameter
22 for-a-four-inch-pipe,--one-inch-diameter-for-a-five--to
23 eight-inch-pipe,--and-two-inch-diameter-for-a-ten--or-12-inch
24 pipe.

25 D.--When-required-to-be-provided-by-item-A,--an
26 automatic-low-pressure-drain-must-be-provided-on-the-bottom-of
27 the-horizontal-irrigation-pipeline-on-the-supply-side-of-each
28 check-valve.--The-device-must-have-an-orifice-size-of-at-least
29 3/4-inch-diameter.--The-drain-may-not-extend-beyond-the-inside
30 surface-of-the-bottom-of-the-irrigation-pipeline-or-conduit,--and
31 must-be-at-least-two-inches-above-grade.--The-device-must-be
32 positioned,--or-the-location-grade-adjusted,--so-that-when
33 draining-occurs,--liquid-will-flow-away-from-any-water-supply.

34 C. When two check valves are used, each check valve
35 must be equipped with an inspection port or similar device and
36 be immediately preceded in the irrigation system by a vacuum

1 relief valve and automatic low pressure drain valve.

2 The inspection port must be installed in a manner on the
3 horizontal irrigation pipeline on the supply side of each check
4 valve so that the inlet to the automatic low pressure drain can
5 be observed during irrigation system shutdown.

6 The vacuum relief valve must be installed on the top of the
7 horizontal irrigation pipeline on the supply side of each check
8 valve. The valve must have an orifice size of at least 3/4-inch
9 diameter for a four-inch pipe; a one-inch diameter for a five-
10 to eight-inch pipe; and a two-inch diameter for a ten- or
11 12-inch pipe.

12 The automatic low pressure drain must be provided on the
13 bottom of the horizontal irrigation pipeline on the supply side
14 of each check valve. The device must have an orifice size of at
15 least 3/4-inch diameter. The drain may not extend beyond the
16 inside surface of the bottom of the irrigation pipeline or
17 conduit and must be at least two inches above grade. The device
18 must be positioned, or the location of the grade adjusted, so
19 that when draining occurs, liquid will flow away from any water
20 supply.

21 A check valve must be of heavy duty construction with all
22 materials, including internal parts, resistant to corrosion or
23 protected to resist corrosion. It must be rated a minimum of
24 150 pounds per square inch working pressure and be quick-closing
25 by spring action and tight-sealing so that no leakage occurs at
26 joints or the valve seat when subjected to an internal
27 hydrostatic pressure test of at least two times the valid
28 manufacturer's working pressure of the valve for one minute, and
29 when subjected to an internal hydrostatic pressure equivalent to
30 the head of a column of water five feet high, retained within
31 the downstream portion of the valve body for 16 hours, as
32 evidenced by independent laboratory testing.

33 Check valves must be of a manufacturer and model
34 specifically approved by the commissioner for use in chemigation
35 systems. A check valve of a type that has not received prior
36 approval by the commissioner may not be used until its adequacy

1 has been demonstrated to the satisfaction of the commissioner
2 and approval granted.

3 Check valves, when installed, must be level except that a
4 deviation of not more than ten degrees from the horizontal is
5 permitted.

6 ~~E.~~ D. A flow interrupter device interlocked with the
7 injection unit must be provided in the pesticide supply line
8 between the pesticide injection unit and the supply tank. A
9 normally closed, solenoid-operated valve or other similar device
10 is an acceptable method to positively prevent flow of material
11 or liquid during injection system failure or shutdown.

12 ~~F.~~ E. A check valve that is resistant to chemicals
13 must be provided on the pesticide injection line between the
14 point of pesticide injection into the irrigation system and the
15 pesticide injection unit, pump, or solution tank, positioned to
16 prevent the flow of liquid from the irrigation line to the
17 pesticide injection device.

18 ~~G.~~ F. A mechanical or electrical interlock must be
19 provided between the irrigation system or pump and the pesticide
20 injection unit. If interruption of the irrigation water flow
21 occurs, the interlock must, at a minimum, cause the shutdown of
22 the pesticide injection unit.

23 ~~H.~~ G. A low pressure switch must be located on the
24 irrigation pipeline that will shut down the irrigation system's
25 power supply when the water pressure decreases to the point
26 where the pesticide distribution is adversely affected.

27 Subp. 5. **Purging system.** The irrigation system must be
28 operated for at least ten minutes after the pesticide injection
29 is terminated to allow for a complete purging of the pesticide
30 from the system.

31 Subp. 6. **Posting of sites.** Sites being treated with
32 pesticides through irrigation systems must be posted according
33 to label instructions throughout the period of pesticide
34 treatment.

35 1505.2030 RECORDS AND REPORTS.

1 The chemigation permit holder shall record daily the kinds
2 and amounts of pesticides applied through each chemigation
3 system. These records must be made available to the
4 commissioner and retained for five years from the date of
5 application. Records detailing dates of inspection, the names
6 of inspectors, and the condition of the chemigation unit must
7 also be kept.

8 1505.2040 RESPONSIBILITY.

9 An individual operating chemigation equipment under a
10 chemigation user's permit is responsible for the safe operation
11 of the chemigation equipment, and must be supervised by the
12 permit holder.

13 1505.2050 COMMISSIONER'S RESPONSIBILITY.

14 The commissioner shall periodically provide chemigation
15 safety information to each person holding a chemigation user's
16 permit.

17 1505.2060 INSPECTION, INSTALLATION, MAINTENANCE, AND
18 MODIFICATION.

19 Subpart 1. Official entry. For the purpose of carrying
20 out parts 1505.2000 to 1505.2070, the commissioner, the
21 commissioner's agents, or other designated state agency or
22 county officials may enter a premises at a reasonable time to:

23 A. inspect equipment subject to parts 1505.2000 to
24 1505.2070;

25 B. inspect or sample water, lands, or crops reported
26 to be exposed to pesticides;

27 C. inspect or investigate complaints or injury to
28 humans, crops, land, or environment;

29 D. sample pesticides being applied or to be applied;
30 and

31 E. observe the use and application of pesticides.

32 Subp. 2. Proper installation. Irrigation systems,
33 devices, valves, pesticide injection units, pumps, and solution
34 tanks used for chemigation purposes must be installed and

1 maintained according to manufacturer's recommendations to ensure
2 proper function during chemigation.

3 Subp. 3. **Calibration and inspection.** During periods of
4 chemigation, the owner or operator shall periodically calibrate
5 the pesticide injection system. The owner or operator shall
6 also periodically inspect the entire system for proper operation.

7 Subp. 4. **Modification.** If modification or changes in
8 design, technology, irrigation practices, or other similar
9 reasons warrant the use or placement of equipment other than
10 that specified in parts 1505.2000 to 1505.2070, the Department
11 of Agriculture ~~shall~~ may allow the changes if protection to the
12 water supply is at least equal to that provided by the equipment
13 or equipment placement, required in parts 1505.2000 to
14 1505.2070. Prior to making any changes in the system, the
15 applicant shall submit a revised chemigation permit application
16 to the commissioner. The commissioner has 45 days to review the
17 application and issue a new permit or advise the applicant in
18 writing of an unsatisfactory review, detailing all necessary
19 revisions.

20 1505.2070 PROHIBITED ACTS.

21 It is a violation of Minnesota Statutes, chapter 18B, for a
22 person to apply pesticides to land, crops, or plants in or with
23 irrigation water in violation of parts 1505.2000 to 1505.2070.

24
25 EFFECTIVE DATE. Parts 1505.2000 to 1505.2070 become
26 effective January 1, 1989.