6/8/92

Department : Agriculture

STATE OF MINNESOTA
Office Memorandum

Date : May 20, 1992

To : Maryanne Hruby, Director
LCRAR

From : Carol Milligan CM
Agriculture Planning Division

Phone : 296-6906

Subject : **Rule Governing Chemigation**

As required by Minnesota Statutes, sections 14.131 and 14.23, attached is the Statement of Need and Reasonableness for the above-captioned rule. The Notice of Intent to Adopt and the rule will be published in the *State Register* on 6/8/92.

Attachment

STATE OF MINNESOTA
DEPARTMENT OF AGRICULTURE

In the Matter of the Proposed)
Rule of the Department of Agriculture)
Pertaining to Chemigation)

STATEMENT OF NEED
AND REASONABLENESS

INTRODUCTION

The subject of this rulemaking is the proposed adoption by the Minnesota Department of Agriculture (MDA) of a rule governing the permitting and use of chemigation systems. Minnesota Statutes 18B.08 and 18C.205 require the department to adopt a rule to implement a program to regulate the application of agricultural chemicals by irrigation. This rule includes the development of a permit program, the installation of anti-siphon devices as part of the irrigation system, and the assessment of a non-refundable application fee for each water supply that is to be used in applying agricultural chemicals by irrigation.

Minnesota Rule, parts 1505.2000 through 1505.2080, the Minnesota Pesticide Chemigation Safety Rule is repealed and the MDA's new proposed rule which governs both fertilizer and pesticide usage through irrigation systems has been substituted.

As a result of extensive contact and negotiation for consensus with interested persons, regulated clientele, groups that represent regulated clientele, state of Minnesota government bodies, and other government bodies, it is the department's position that the adoption of this proposed rule will be noncontroversial.

Background

Fertilizers, fungicides, insecticides, and other agricultural chemicals have been applied through irrigation systems in Minnesota for many years as part of the routine production of agricultural commodities, including but not limited to, potatoes and greenhouse crops. In many cases, the application of agricultural chemicals through irrigation systems has been used as a "best management practice" to reduce and/or better manage the use of fertilizers and pesticides.

Water supplies for chemigation systems include both private and municipal wells, and in rare cases may include surface water. In many cases, both storage tanks and injection systems are sited within 150 feet of the water supply.

Because of the nature of the use of storage tanks and injection systems, there is a potential for the water supply, including ground or surface water, to become contaminated from agricultural chemical spillage in and around the water supply, storage tank rupture, backsiphonage of agricultural chemicals, and introduction of agricultural chemicals from backpressure, and misapplication from improperly operating systems.

Current law administered by the Minnesota Department of Health (MDH) governs the siting of agricultural chemical from contamination sources, as well as requires the use of backflow prevention devices to prevent contamination and cross contamination of water supplies.

The United States Environmental Protection Agency, through the chemigation Label Improvement Program (LIP) has directed pesticide manufacturer registrants to include specific language on pesticide labels mandating the use of anti-pollution equipment, as well as limiting the type of irrigation system that can be used, and the type of crop that may receive a chemigation application.

The proposed rule attempts to bring together in one rule a comprehensive regulatory and education based approach to the regulation of the application of both fertilizers and pesticides through irrigation systems. Specifically, it attempts to regulate the activities of those persons that apply fertilizers or pesticides through irrigation systems, provides clear direction on the types of anti-pollution equipment that must be used and their placement, and provides an oversight mechanism to insure that chemigation systems are safely operated.

Agricultural chemical incidents and water supply contamination from agricultural chemicals should be minimal at chemigation sites that comply with this proposed rule.

Impact on Small Business

The overwhelming majority of regulated persons (including but not limited to individual farmers and greenhouse owners/operators) who are required to comply with the proposed rule are small businesses.

The proposed rule complies with the directive in Minnesota Statutes 18B.08 and 18C.205 requiring any person who applies agricultural chemicals through any irrigation system connected directly to a water supply to obtain a permit from the MDA and install the required anti-pollution devices.

The proposed rule is also consistent with the state's goal of nondegradation of ground water, which was established by the 1989 Comprehensive Ground Water Protection Act.

The costs of preventing agricultural chemical contamination from occurring, as required by this rule, are considerably less expensive than the costs to investigate and clean-up soil and ground water contamination. The costs of investigations and clean-ups vary, depending upon the extent of contamination; however, investigations and clean-ups are complicated, time consuming, and may cost several hundreds of thousands of dollars to complete.

In addition to costs associated with contamination remediation, another important factor to consider is the impact to human health that may be caused by the contamination of drinking water supplies.

It is the MDA's position that the cost of the required antipollution equipment that will be borne by small businesses is significantly less costly than remediating contamination, and is therefore reasonable.

It is possible for regulated persons to utilize technology and pollution prevention practices that are less costly and do not trigger compliance with the proposed rule. It is the MDA's experience that one to two person and family operated small businesses will be able to apply agricultural chemicals at their site

through irrigation systems that are not directly connected to a water supply and thus do not need to comply with the rule.

The average cost for compliance with the proposed rule, including anti-pollution devices and injection systems, ranges from hundreds of dollars for greenhouses, to several thousand dollars for center pivot irrigators. These costs are reasonable given that the devices required in the rule are the minimum necessary to prevent contamination of ground water and surface water, and that certain anti-pollution devices are already required by Minnesota law. In addition, the devices required are reasonable because they are accepted engineering standards and are similar to the standards in the chemigation LIP and the regulations of surrounding states.

The permit application requires that the minimum amount of information be submitted for the MDA to check for compliance with the proposed rule and make inspections. The permit application has been simplified from the version used in the repealed rule. Average time to fill out the application should be no more than a few hours.

To reduce the burden on regulated clientele, the permit renewal process is every 2 years. Regulatory compliance education information will be mailed at least one time per year to permit applicants.

A chemigation area posting requirement is being proposed that is consistent with the format, language and siting of signs already in use for application of all agricultural chemicals requiring posting. In addition, the siting requirement for the signs is consistent with MDA posting policies previously established.

Application and inspection recordkeeping requirements have been implemented which are very easy to understand and comply with.

Alternative antipollution equipment for chemigation systems which will prevent contamination of water supplies will be allowed by the MDA under parts 1505.2700, Subdivision 2, provided they provide protection equal to that of the devices required by the proposed rule.

Finally, the compliance date of January 1, 1994 allows adequate time for regulated clientele to evaluate the compliance options available and become educated regarding the procedure for obtaining a chemigation permit. In addition, the compliance date of January 1, 1994 allows the MDA adequate time to develop and effectively administer the program.

Need and Reasonableness of the Proposed Rule

Section 1505.2100: The definitions are necessary to insure that the rule is clearly understood. The inclusion of definitions is reasonable so that MDA may consistently apply the rule, and so that regulated persons do not become confused as to how to interpret the various language contained in the rule.

Section 1505.2200:

Subpart 1. It is necessary for the MDA to administer the required permit portion of the rule by implementing the permit-by-rule process because the MDA has limited staff resources to administer the rule. This approach is reasonable because the process that will be used by the MDA depends heavily on oversight by the MDA, and one-on-one consultation with regulated clientele as a part of the submission of a permit application by the regulated clientele. The MDA anticipates that any noncompliance encountered during the permit process can be effectively

corrected through direct communication with regulated clientele, and with a system inspection as necessary. In addition, the permit-by-rule process is reasonable because the MDA will direct its field staff to assist regulated clientele requiring help with the permit application.

Subpart 2. The two year renewal process is necessary so that MDA is apprised of any changes in anti-pollution devices and/or the permittee's chemigation system. It is reasonable for MDA to be apprised of changes in anti-pollution devices/chemigation systems at least every two years so the rule may be effectively enforced, and so the MDA may inform regulated clientele of any changes in technology or rule interpretation. The MDA considered other renewal time frames, and came to the conclusion that a two year renewal time frame could be best management by the MDA and was the least burdensome to regulated persons.

Subpart 3. Because Minnesota Rule, parts 1505.2000 through 1505.2080 are being repealed, it is necessary to clarify that existing chemigation permit holders are not required to duplicate their original efforts and obtain a new chemigation permit, but rather to renew their existing permit every two years. It is reasonable to do this to eliminate bureaucratic red tape for regulated clientele. The MDA also believes the two year renewal is reasonable because the MDA will be apprised of system changes in a timely and reasonable fashion. The MDA considered other renewal time frames and came to the conclusion that a two year renewal time frame could be best managed by MDA and was the least burdensome to regulated persons.

Subpart 4. The permit application is necessary to gather information pertinent to the location, ownership, operation of the chemigation system, and installation of anti-pollution devices. The information requested is reasonable because it is the minimum information necessary for MDA to effectively determine regulated persons' compliance with the proposed regulations. In addition, the permit application requirements are reasonable because they depend on information which is already available, and can be easily obtained by regulated clientele.

Subpart 5. It is necessary to require persons that change their permitted chemigation system to obtain a permit from the MDA prior to changing the system. It is reasonable to require regulated persons to obtain an additional permit outlining changes to assist them in compliance with the rule, to protect against contamination of water supplies from ineffective anti-pollution devices, and to inform them about any changes in technology or rule.

Subpart 6. It is necessary for the MDA to inspect chemigation systems for compliance. It is reasonable to inspect systems to protect against incidents. In addition, inspections are reasonable because they will be conducted during normal business hours and should not present any undue hardship to regulated persons.

Section 1505.2300:

Subpart 1. It is necessary to make a distinction between regulations for pesticides and fertilizers because the use, storage, handling, distribution, and disposal of pesticide products are regulated at both the federal and state level, while fertilizer use, storage, handling, distribution and disposal is regulated predominantly by the state. It is reasonable to do this because regulated persons need to know that there are legal differences to avoid: a) noncompliance with both federal law and Minnesota law, and b) contamination of water supplies.

Subpart 2. A. Making setback distances consistent with the well code is

necessary to insure that regulated persons comply with MDH regulations. It is reasonable to adopt the same standard as the well standard for water supplies not regulated by the well code to insure consistency and to make compliance easier.

B. Protection of water supplies from rupture of storage containers, from end hose discharges, and from mix/load activities is necessary because incidents associated with these areas have a greater potential to cause environmental contamination. The installation of a safeguard under certain conditions where/when an incident is more likely (as in two of 1, 2, or 3), or may have a more negative environmental effect, is reasonable because safeguards are already required for agricultural chemical businesses with similar handling practices. In addition, the type of safeguard that will be/can be used in most situations is easily and cost efficiently installed in most cases.

The 1500 gallon tank trigger is reasonable because the tank size most common in fertilizer chemigation is 1500 gallons or less. The 100 foot setback distance is reasonable because that is the setback being proposed by the MDH in their amended well code regulation (setbacks) for non-safeguarded contamination sources.

The 30 day storage trigger is reasonable because it is expected that most farmers/growers will not have a use for fertilizer storage at the average chemigation site beyond 30 days.

C. The general requirement that safeguards be leakproof is reasonable to insure that safeguards are not built in a manner that renders the safeguard ineffective to prevent environmental contamination. The leakproof requirement is reasonable because it is consistent with generally accepted performance standards accepted by industry and government regulatory bodies.

D. The capacity difference requirement is necessary to insure that safeguards are adequately sized to account for precipitation. The sizes are reasonable because they are consistent with accepted industry standards and existing MDA regulations.

E. The material/construction specification requirements are necessary to insure that safeguards are only constructed of materials known by the MDA and industry to be appropriate for the kinds and amounts of products being stored. The specifications given are reasonable because they are consistent with standard engineering practices and MDA regulations. In addition, the specifications are reasonable because they allow flexibility in construction.

Subpart 3. It is necessary to indicate that the required anti-pollution devices/valves may only be designed and constructed of materials suitable for chemigation so that the chemigation system functions properly. It is reasonable to indicate this information so that operators will better be able to comply with specifications, thereby insuring the protection of water supplies. It is reasonable to allow portable anti-pollution devices for non-public water supplies because portable systems common to field crop use offer adequate protection.

Portable backflow prevention devices are not allowed for public water supply systems (as defined by the MDH) to insure that an inadvertent cross connection to potable water supplies does not occur. It is reasonable to take this approach to be consistent with Minnesota Department of Health regulations.

A. It is necessary to require a mainline backflow prevention device, because these devices are the primary protection against ground and/or surface water

contamination in the event of a failure of the other anti-pollution devices of a chemigation system. The requirement is reasonable because it protects ground and surface water supplies from contamination from agricultural chemicals. In addition, the requirement is reasonable because it gives regulated persons an option to use two different styles of mainline backflow prevention devices which offer substantially similar protection, but which differ in price. Also, the requirement is reasonable because the devices being required are commonly available and are already in use with chemigation systems.

The placement of the mainline backflow prevention device in the irrigation line immediately prior to the point of injection is necessary because this is the only location in the irrigation line where a mainline backflow prevention device can be placed to prevent against contamination of ground and/or surface water. This requirement is reasonable because the placement required in the rule is also an accepted engineering standard.

Mainline check valves:

It is necessary to allow only one mainline check valve for the application of fertilizer to prevent regulated persons from purchasing and using a greater number of check valves than are needed to comply with the regulation. It is reasonable to allow only one mainline check valve for the application of fertilizer because only one mainline check valve is an accepted engineering standard.

It is necessary to require mainline check valves to comply with part B to insure that all mainline check valves being used for chemigation will meet basic design and equipment standards. This requirement is reasonable because ground and/or surface water will not be protected unless all mainline check valves meet certain basic design and equipment basis standards. The standards are discussed in more detail in part B.

It is necessary to require that mainline check valves to be tested and certified by an independent testing laboratory to insure that integrity of testing and certification is maintained. This requirement is reasonable because states that have adopted chemigation regulations have adopted similar standards. In addition, independent test laboratories are already familiar with the required test procedures.

It is necessary to require that mainline check valves be marked with the information required to insure that both regulated persons and the MDA can tell at a glance if the mainline check valve being used is properly placed and meets the requirements set forth in the rule. This requirement is reasonable because it aids in regulated persons' compliance with the rule.

Reduced pressure zone backflow preventers:

It is necessary to specify that only reduced pressure zone backflow preventers may be used for public water supplies because they are required by the department of health. It is reasonable to make this known to persons who must comply with the rule so that they comply with department of health regulations.

Lists:

It is necessary for the department to maintain a list of mainline backflow prevention devices that are approved by the department of health or that meet the standards in part B, so that regulated persons are assured of using mainline backflow prevention devices that meet certain minimum standards. The requirement is reasonable because it makes it easier for regulated persons to

comply with the rule.

It is necessary to allow persons to use mainline backflow prevention devices that were approved by the department under the repealed rule provided they comply with the requirements of part B because many of these devices have already been installed by regulated persons. This requirement is reasonable because the previously approved devices already comply with the requirements of part B.

B. It is necessary to set standards for certain anti-pollution devices required to be installed on single and double check valves to insure that they will allow the check valves to operate in a manner to prevent contamination of water supplies during system shutdown. It is reasonable to do this to protect water supplies and to give guidance to regulated persons when selecting check valves.

An inspection port is necessary to allow for inspection of a check valve during system shutdown. This is reasonable because most check valves are manufactured with inspection ports already installed, and an inspection port is the only way to insure that vacuum breakers, check valves and automatic low pressure drains contain the required equipment and operate properly. A vacuum relief valve is a device that is necessary to release line pressure on system shutdown. The requirement is reasonable to insure that the automatic low pressure drain will operate, thus releasing all liquids in the check valve body.

It is necessary to indicate the exact location and acceptable valve orifice sizes of the vacuum relief valve because the location and valve orifice sizes will dictate if there will be adequate protection against the backsiphonage of agricultural chemicals. The specific location and valve orifices sizes are reasonable because they are acceptable engineering standards.

It is necessary to require an automatic low-pressure drain with a 3/4 inch orifice so that backsiphon protection is assured if there is a pressure drop in the system. The use of the low-pressure drain and its location in the system are accepted engineering standards. It is reasonable to direct any drainage away from the well so that contamination of the well does not occur. Additional drain standards have been chosen because of observed poor field performance of certain types of automatic low pressure drains. The additional standard is reasonable because it assures consistency in check valve draining during system shutdown and sets a minimum drain standard.

The inspection port, vacuum breaker, automatic low pressure drain that have been required are also reasonable because they are recommended engineering standards and they are currently required in states with chemigation regulations.

It is necessary to specify performance standards for check valves to insure that all valves approved by the commissioner will provide the same minimum level of protection for water supplies. The standards are reasonable because they are consistent with standards proposed by the MDH, are similar to the standards already in law in states with chemigation regulations, and are recommended engineering standards. In addition, valve manufacturers have already designed and constructed their valves to comply with the standards in the rule and test their valves according to the standards specified in the rule.

C. A check valve at the point of agricultural chemical injection into the irrigation system is necessary to prevent flow of irrigation water into the agricultural chemical supply tank during system shutdown. It is reasonable to require this because flow of irrigation water into the supply tank could result in

an agricultural chemical incident.

It is conversely necessary to prevent unwanted flow/siphonage of agricultural chemicals to the irrigation system from the supply tank to prevent damage to crops and to prevent an incident. This is reasonable because most systems are already designed with an injection line check valve. In addition, the chemigation LIP requires an injection line check valve to prevent environmental damage.

D. An interlock system is necessary to prevent continuing agricultural chemical injection into a non-operational irrigation system. It is reasonable to prevent agricultural chemical flow so that an agricultural chemical incident does not occur, and so that crops are not damaged.

E. A low pressure switch is necessary to prevent agricultural chemical misapplication. It is reasonable to prevent agricultural chemical misapplication because misapplication may result in pesticide label violations, lack of target pest control, possible plant damage, and possible ground water or surface water contamination.

The standards set forth in C, D, and E are also reasonable because they are accepted engineering standards, and are similar to the standards already in law in states with chemigation regulations.

Subpart 4. It is necessary to purge irrigation lines after agricultural chemical injection to remove agricultural chemicals from the system. It is reasonable to remove agricultural chemicals from the system to eliminate plant damage or environmental damage. It is also reasonable because this practice is in common use by owners/operators.

Subpart 5. It is necessary to post lands that are chemigated to protect against entry into treated areas by unauthorized persons. This is reasonable because posting is required by Minnesota law and federal law, and is already widely done by regulated persons to warn persons who may enter chemigation sites about the hazards presented.

Section 1505.2400:

A record of agricultural chemical application is required so that MDA, under regulations set forth in Minnesota's Comprehensive Ground Water Protection Act, may monitor agricultural chemical use through irrigation systems. Records of inspections are required so that owners/operators will document that all anti-pollution equipment is operational. The recordkeeping requirement is reasonable because it is similar to the recordkeeping already being done by regulated clientele.

The five year record retention schedule is necessary to allow the MDA and adequate history of application of agricultural chemicals for different crops and system inspection at a particular chemigation site.

The five year record retention required is reasonable because it is consistent with similar record retention required in Minnesota law, and the recordkeeping already being done by regulated clientele as part of the production of agricultural commodities.

Section 1505.2500:

A. It is necessary to require owners/operators to calibrate and operate their

chemigation system to prevent the unintentional or excess release of agricultural chemicals into the environment, to insure that the owners/operators comply with state and federal law governing the application of agricultural chemicals through irrigation systems. The requirement is reasonable because owners/operators already calibrate and operate injection equipment prior to each injection.

B. It is necessary to require owners/operators to inspect chemigation systems during operation to insure that the unintentional or excess release of agricultural chemicals into the environment does not occur as a result of inoperative equipment and to insure that owners/operators comply with state and federal law governing the application of agricultural chemicals. The requirement is reasonable because owners/operators already routinely inspect their chemigation systems during operation to insure that agricultural chemicals are being properly applied.

C. It is necessary to require owner/operators to operate chemigation systems properly to insure that the unintentional or excess release of agricultural chemicals into the environment does not occur as a result of faulty equipment and to insure that owners/operators comply with state and federal law governing the application of agricultural chemicals. The requirement is reasonable because their is no economic or system management benefit to owners/operators to misapply agricultural chemicals and damage human health or the environment.

D. It is necessary to prohibit owners/operators from engaging in certain environmentally detrimental chemigation and management practices to insure that water supplies, including ground water and surface water, are protected against contamination from agricultural chemicals.

The requirement is reasonable because the water supplies being used by owners/operators for chemigation are sources of ground water or surface water that are protected under Minnesota law against degradation.

E. It is necessary to require owners/operators to report incidents to insure that they comply with state and federal law. The requirement is also necessary to insure that negative environmental and human health impacts are minimized as a result of an incident. The requirement is reasonable because most owners/operators are already knowledgeable that they must report incidents and are generally cooperative by expeditiously cleaning up incidents.

Section 1505.2600:

It is necessary for the commissioner to periodically update the system user on safety practices so that human health and the environment is protected. Improper operation of the system may jeopardize human health or the environment through personal injury or ground water or surface water contamination. It is reasonable for the MDA to provide this information because the MDA has access to the latest technical information available, and therefore is the best source of that information for regulated clientele.

Section 1505.2700:

Subpart 1. It is necessary to specify that equipment must be installed and maintained so that proper functions are maintained. It is further necessary to maintain proper functions so that unreasonable, adverse effects on the environment and damage to human health do not occur. The requirement is reasonable because owners/operators have a vested interest in installing and operating their chemigation system according to manufacturers' recommendations or pertinent Minnesota law to insure that the application of agricultural chemicals

is done with maximum efficiency.

Subpart 2. It is necessary to allow for modifications in the system so that changes in technology and equipment availability may be addressed. Changes in the system that do not jeopardize ground water or surface water and assist regulated persons are reasonable to insure that the environment is protected and regulated persons have additional options to utilize as needed for crop production.

Section 1505.2800:

It is necessary to restate statutory requirements so that compliance is assured. It is reasonable to state required compliance so that regulated persons understand what laws are applicable.

Effective Date:

A time-frame for compliance is necessary to that the rule may be effectively implemented. It is reasonable to include a January 1, 1994 timeframe for compliance so that potential operators have adequate time to procure and install anti-pollution devices and file a chemigation permit application with the MDA, and to allow the MDA time to hire staff to develop a system for administering the proposed rule.

Repealer:

It is necessary to repeal parts 1505.2000 through 1505.2080 because the rule only regulated the application of pesticides through irrigation systems and not fertilizers, and therefore a substantial number of amendments would have been necessary to incorporate beneficial changes and include regulations for the application of fertilizers. It is reasonable to repeal parts 1505.2000 through 1505.2080 because it is more efficient administratively, and because it will lessen confusion by regulated persons.