

Approved April 8, 1989  
Date

MINUTES OF THE HOUSE COMMITTEE ON ENERGY AND NATURAL RESOURCES

The meeting was called to order by Representative Dennis Spaniol at  
Chairperson

3:30 ~~xx~~/p.m. on March 22, 1989 in room 526-S of the Capitol.

All members were present except:

Representative Lucas (excused)

Committee staff present:

Raney Gilliland, Legislative Research  
Mary Torrence, Revisor of Statutes' Office  
Betty Ellison, Committee secretary

Conferees appearing before the committee:

Secretary Sam Brownback, Kansas State Board of Agriculture  
Dale Lambley, Director, Division of Plant Health, Kansas  
State Board of Agriculture  
Alex Hawkins, Pesticide Use Law Administrator, Kansas State  
Board of Agriculture  
Howard W. Tice, Executive Director, Kansas Association of  
Wheat Growers  
Bill R. Ruller, Assistant Director, Public Affairs Division  
Kansas Farm Bureau  
Joseph F. Harkins, Director, Kansas Water Office  
Robert Grace, Kansas Agricultural Aviation Association

The meeting was called to order by Chairman Dennis Spaniol.

Senate Bill 2 - Defining terms, changing requirements and clarifying  
language in the chemigation law.

Secretary Brownback, Board of Agriculture, presented an overview state-  
ment. He called attention to a copy of the review of operations done  
of the State Board of Agriculture's Pesticide Enforcement and Certifi-  
cation Program by the U.S. Environmental Protection Agency which was  
attached to his written testimony. Attachments 1 and 1a.

Dale Lambley, Director of the Division of Plant Health, advised the  
committee that Senate Bill 2 was submitted through action of the Special  
Committee on Agriculture and Livestock, following an interim study of  
the Kansas Chemigation Safety Law in 1988. He noted that many items in  
the bill were a direct response to recommendations made by the Plant  
Health Division to the interim committee. Mr. Lambley discussed pro-  
visions in various sections of the bill which are included in Attach-  
ment 1.

During discussion, it was noted that this bill is similar to one passed  
out of the House last year. One of the primary differences was a split  
in civil penalty structure between fertilizers and pesticides last  
session, which does not appear this year. The point of diversion fee  
is less this year, and animal waste has been added. Also, equipment  
requirements were more specific in the bill last session. The Chair  
requested staff to run a comparison of last year's legislation versus  
Senate Bill 2.

Responding to questions, Mr. Lambley said there is a total of 2165 wells  
actually chemigating; 634 were inspected last summer and 1435 since  
July 1, 1985. The Chairman requested a summary of findings on water  
quality. He was advised that of 220 wells sampled, low levels of pesti-  
cide contaminants had been found in six wells and those wells were below  
EPA standards. However, none of those appear to be related to any back-  
siphoning.

CONTINUATION SHEET

MINUTES OF THE HOUSE COMMITTEE ON ENERGY AND NATURAL RESOURCES,  
room 526-S Statehouse, at 3:30 ~~xxx~~p.m. on March 22, 1989

Following discussion of effects of the current draught situation, Chairman Spaniol requested that a briefing be provided for all members of the committee.

Alex Hawkins of the Board of Agriculture displayed a main line check valve and associated features. The committee discussed the materials and cost of the check valve, as well as the number of inspectors needed and rate of compliance.

Howard Tice represented the Kansas Association of Wheat Growers in support of Senate Bill 2. He commented that Kansas was leading other states in promoting agricultural practices that are safe for the producer and safe for the environment. However, he felt that the \$5,000 per day penalty would be excessive. Mr. Tice discussed three amendments to the bill which he understood would be offered. Attachment 2.

During discussion, the Chair requested Secretary Brownback to provide information relative to the level of compliance with the chemigation safety law.

Bill Fuller, representing the Kansas Farm Bureau, spoke in support of Senate Bill 2. He emphasized four points which included recommendation to add the concept of privatization and House Bill 2130 to Senate Bill 2, adding resources to administer the chemigation safety law, and allowing the State Board of Agriculture to continue to be the regulating agency for the Chemigation Safety Act. Attachment 3.

In response to a question relative to increasing fees to support three additional inspectors, Mr. Fuller said it was important to have adequate regulation and a modest fee increase such as \$20.00 would be supported by Farm Bureau.

Joseph Harkins presented favorable testimony on behalf of the Kansas Water Office. He emphasized the need for more field inspectors, noting that a greater number of inspections should increase the level of compliance. Attachment 4.

Asked what he considered adequate enforcement, Mr. Harkins said he did not know the exact number of additional inspectors needed, but it would be greater than one.

Robert Grace, representing the Kansas Agricultural Aviation Association, testified in opposition to Senate Bill 2, noting three particular points of concern. Attachment 5. Attached to his written testimony were proposed modifications to Senate Bill 2, Attachments 5a and 5b, a newspaper clipping regarding survey tests of groundwater, Attachment 5c, an article from the Extension Service of the University of Nebraska at Lincoln, Attachment 5d and a listing of Kansas water well preliminary tests, 1987-1988, Attachment 5e.

Discussion relative to aerial spraying of pesticides followed.

Written testimony was submitted to the committee by Charlene Stinard of the Kansas Natural Resource Council. Attachment 6.

The meeting was adjourned at 5:00 p.m.

The next meeting of the House Energy and Natural Resources Committee will be held at 3:30 p.m. on March 23, 1989 in Room 526-S.

Date: March 22, 1989

GUEST REGISTER  
HOUSE  
COMMITTEE ON ENERGY AND NATURAL RESOURCES

NAME	ORGANIZATION	ADDRESS	PHONE
Jerry Doop	KFCA	HUTCHINSON, Ks	316 665-6504
Chris Wilson	KFCA	Topeka	234-0461
Robin Kline	Self	HAWANA Ks	316 673-9185
Bob Kline	Self	"	"
Bob Faust	KAAA	Leoti, Ks.	316 375 4316
Mike Bohnhoff	Div. of Budget	Topeka	2436
Dole Lambles	KSBA	Topeka	2263
Sam Brownback	"	"	3558
Alex Hawkins	"	"	5192
Howard W. Tice	KAWG	HUTCHINSON	316-662-2367
Richard E. Mori		Topeka	
Kenneth M. Wilke	KSBA	Topeka	3848
Dalryt Singh Janna	KWB	TOPEKA	3185
De Habers	RWO	TOPEKA	3185
John Peterson	NACIA	Topeka	233-1903
RG Frey	KAAA	"	
Robert Grace	KAAA	ST FRANCIS, KS, 67186	913 332-2251

TESTIMONY

to the

HOUSE COMMITTEE ON ENERGY AND NATURAL RESOURCES

SENATE BILL 2

by

Secretary Sam Brownback  
Kansas State Board of Agriculture

and

Dale Lambley, Director  
Division of Plant Health  
Kansas State Board of Agriculture

22 March 1989

Mr. Chairman, members of the Committee, it is my pleasure to be able to address this group in support of Senate Bill 2. Our presentation is in several parts. I will present a brief opening statement. Dale Lambley, Director of the Plant Health Division, will explain some of the "nuts and bolts" of Senate Bill 2 and finally we will end up by showing to the Committee how the chemigation equipment works.

The State Board of Agriculture and the farmers of this State are concerned about the environment. Indeed, if we do not take care of the environment, the agricultural community will suffer first and the most, both economically and socially. The farm community has grown acutely aware of environmental issues facing it. Today, we are presenting solutions, such as the one in front of you, to address particular issues concerning agricultural chemicals.

We at the Kansas State Board of Agriculture are serious about our role in this as a regulatory agency. We are a regulator in this area who has taken our job seriously, and we believe effectively, in enforcing the laws. Given a law to enforce and the resources to do it with, we will do the job, and we will get the job done. Attached hereto is the most recent review of operations done of the State Board of Agriculture's Pesticide Enforcement and Certification Program by the U.S. Environmental Protection Agency. This latest review, dated

*H Energy and NR  
3-22-89  
Attachment 1*

December 6, 1988, shows the excellent progress we are making in the pesticide area. The EPA reviewer ends up by stating the following:

The inspections conducted by the Pesticide Use Section staff have shown a vast amount of improvement over the past few years. At this point, the section is very close to having an excellent inspectional program. Extra effort by program management and staff could allow this to happen during FY 89.

We are very proud of how EPA sees our enforcement programs, and we hope that you are pleased with our efforts as well.

Today, we are here to discuss chemigation. The proposal in front of you in the form of Senate Bill 2, contains a request for increased inspection fees per well, increased civil penalties and other provisions concerning the chemigation law. I would like to now turn our presentation over to Dale Lambley, Director of the Plant Health Division, for further comments.

Senate Bill No. 2 was submitted through action of the Special Committee on Agriculture and Livestock, following an interim study of the Kansas Chemigation Safety Law during late summer and early fall last year. The bill contains many items which are a direct response to recommendations which the Plant Health Division made to the interim committee, and it is these toward which I would like to direct my remarks this afternoon.

During our work with the chemigation program, the division became aware that some feed yards in the state are utilizing the chemigation process to apply feedlot sludge to fields. We believe it to be the intent of the Chemigation Safety Law that anti-pollution devices should be included upon the irrigation systems applying feedlot sludge, as with any other chemical. However, the wording is not clear in this area, and the fertilizer law exempts animal dung from the fertilizer classification. Consequently, we requested clarification of the actual status of feedlot sludge to the chemigation program. The proposed inclusion of the words "animal wastes" in line 24 effectively makes the clarification.

The division also asked for inclusion of one additional definition so as to pinpoint the actual site referred to as the water source. The language included in lines 59 through 64 does this by adopting the standard definition used under current Kansas water law.

Language in line 85 would increase the current application fee for a chemigation user's permit from \$50 to \$50 plus \$10 for each additional point of diversion used for chemigation. From best recollection, this change developed from recognition that the same permit fee was being assessed to each individual regardless of the number of chemigation systems that were operated under the individual's permit. Kansas State Board of Agriculture regulations limit the number of chemigation systems which may be supervised by any one person to 10, but this does not limit the number of sites which may be operated under one permit. Consequently, there were suggestions that charging an additional fee per well would more equitably distribute the cost. Also, the committee recognized that additional inspections were needed in the field. To date, we have been trying to operate the program with one field staff person. This is Marc

Anderson, Chemigation Safety Specialist with the division. Marc can inspect approximately 350 chemigation sites in a year's time, but there are over 2,500 chemigation sites known to occur within Kansas. The increased fees were to aid in supporting additional field personnel for the program. A general breakdown of the number of chemigation wells registered per owner is as follows:

<u>No. of Chemigation Wells</u>	<u>% of Chemigators</u>
1	16.7%
2	18.1%
3	14.4%
4	11.5%
5-10	30%
11-20	4.9%
21-30	9%
31-40	2.3%
41-50	0%
51-60	3%
61-100	6%
100+	3%

Section 3 contains a number of amendments requested by the division in the technical equipment requirements of the current law. Basically, there are certain devices essential to safe chemigation operations and which are necessary to prevent back-siphoning of chemicals and contamination of the groundwater supply. However, there are others included in the current language which apply primarily to ensuring that the proper mix is obtained and applied to the field. The latter group are items which we might like to recommend as a good management practice, but we do not feel these belong as statutory requirements. Further, they have nothing to do with prevention of back-siphoning and, in one case, are not practical. Consequently, we would like to recommend adoption of the amended language. Finally, language in lines 110 and 111 is amended to specify the actual location where one is to install the vacuum relief device.

New Section 4 would increase the penalty for violation of the chemigation safety law up to \$5,000 per violation. The current fine is fixed at \$500.

New Section 5 grants civil penalty authority to the agency and provides for penalties in an amount not less than \$100 nor more than \$5,000 for each violation. I believe that this committee is also cognizant of the fact that we feel that civil penalties are a valuable adjunct to each of our pesticide programs. In effect, civil penalties provide us with a range of options between a simple letter of warning and revocation of the permit to operate. The penalty provisions proposed in this bill are identical to ranges recently established for the Kansas Pesticide Law and are similar to those used by the U.S. Environmental Protection Agency (0 to \$5,000).

Section 6 contains provisions for mandatory testing of individuals operating chemigation equipment. This language was added to Senate Bill No. 2 by the Senate Committee on Agriculture. A similar provision was contained in the original chemigation bill that the agency submitted to the legislature in 1985, and we continue to support this concept.

The agency supports this bill and appreciates the fact that the interim committee believed our recommendations to be practical and appropriate. We hope that this committee will also look upon them favorably.




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII  
726 MINNESOTA AVENUE  
KANSAS CITY, KANSAS 66101

DEC 06 1988

MEMORANDUM

SUBJECT: Summary of Strengths and Weaknesses Found During the Kansas Pesticide Enforcement and Certification FY-88 End-of-Year Evaluation and Recommendations for Improvements

FROM: Robert W. Jackson   
Grant Manager

TO: C.E. Poindexter  
Chief, Compliance Monitoring and State Programs Section

Strengths

1. The Pesticide Registration Section inspectors are doing excellent work concerning the collection of documentation during marketplace/dealer and producer establishment inspections. The case review of these inspections is being done in a very timely manner and the Section personnel have been very cooperative concerning special assignments (quarterly monitorings, etc.).
2. With the exception of three cases which are scheduled for formal hearing or other action, the Pesticide Use Section's 1987 case backlog (approximately 200 cases) has been depleted. Also, approximately 58% of the 1988 backlog has been reviewed and it is anticipated that there will be no backlog going into calendar year 1989. This is primarily due to the excellent job which Sally Wilk, who was hired as a Case Review Officer in March (utilizing grant monies), has done. Ms. Wilk should be commended.
3. The Pesticide Use Section inspectors have again shown improvement concerning the collection of the documentation and the completion of narratives and statements for use/follow-up inspections (see attached graph and chart). The fact that the inspectors and the case review officer have a good working relationship is a definite asset to the program.
4. The turnaround time for samples is excellent and continues to be within the 45 days allowed by the Region VII Evaluation Protocol Guidance. The average analysis time for samples for those cases reviewed was 16 days.
5. The Board continues to update certification exams as training manuals are revised.



6. KSBA upper management has developed a more enforcement minded attitude, which should prove beneficial to the program. This is exemplified by the fact that the Plant Health Division is once again holding hearings.

#### Weaknesses

1. The number of use/follow-up cases in which report narratives are not completed within 20 days remains at approximately 21%. More attention needs to be given to this area and some of the inspectors need to make more of an effort to date the narratives when they are completed.

#### Recommendations

1. Due to the fact that the work completed by the Pesticide Registration Section has continued to show improvement over the past few years and that the inspections are well documented and reviewed in a timely manner, I recommend that this program receive reduced review in the future as per National Grant Guidance.

2. The inspections conducted by the Pesticide Use Section staff have shown a vast amount of improvement over the past few years. At this point the Section is very close to having an excellent inspectional program. Extra effort by program management and staff could allow this to happen during FY-89.



# Kansas Association Of Wheat Growers

**"ONE STRONG VOICE FOR WHEAT"**

TESTIMONY - SB 2

House Committee on Energy and Natural Resources  
Chairman: Representative Dennis Spaniol

Mr. Chairman, members of the committee, I am Howard W. Tice, Executive Director of the Kansas Association of Wheat Growers. I appreciate this opportunity to appear today in support of SB 2.

Protection of the state's water supply is a high priority of our organization, just as it is with other farm organizations and conservation groups. What many people forget is that farmers have to depend on ground water for drinking and cooking purposes, just like everyone else. To assume that a farmer is going to engage in a practice that endangers his own health, and the health of his family just doesn't make sense.

On the other hand, farmers are no more perfect than anyone else, so they don't know everything about every farming practice they utilize. That's why they print vital information on product labels. That's why we have the **Cooperative Extension Service** to speed up the delivery of new information. And that's also why we need official guidelines and supervision by state agencies - to make sure that accidents don't occur, which would contaminate the water supply.

For that reason, we support the **Chemigation Safety Act**, and the improvements embodied in **SB 2**. Our only concern is the level of penalty imposed by the bill. Since there are no known contamination problems in **Kansas**, caused by chemigation, it would appear that fines of **\$5,000 per day** would be excessive. I would compare such fines to using a sledge hammer to swat a fly. If there had been any cases of wanton neglect, or instances that constituted a definite health hazard, our position might be different. Since the facts surrounding the chemigation issue support the contention that this, still new application method, is being practiced safely, we cannot support the enactment of such stiff penalties.

I should hasten to add at this point, that the **Board of Agriculture** has sampled **216 chemigation wells** in the past two years. **210 wells** showed no pesticides at all, and **six** had only trace amounts.

The non-farm public's concern that contamination might occur as a result of chemigation is valid. That's another reason we support the **Chemigation Safety Law**, and **SB 2**; with the exception of the excessive penalties. That's why we also applaud the efforts of the chemical manufacturers, to supply farmers with products that can be applied in smaller amounts, such as one particular herbicide which is applied at just 1/10th ounce per acre. Micro-encapsulation, which slows down release of chemicals is another step forward in environmental compatibility. Another major goal of today's research is to formulate compounds that will be completely degradable within the first 12 inches of soil.

H Energy and NR  
3-22-89  
Attachment 2

To further underscore industry concern, I would cite a special meeting, I attended a little over two years ago, at the **Washington, D.C.** office of the **National Association of Wheat Growers**. The meeting was conducted by a national chemical manufacturer, who wanted to learn about chemigation safety efforts in the various states, and to communicate their desire to see effective regulations enacted, to prevent ground water contamination.

One of things we learned was that most other states had no real regulation of chemigation. Examination requirements for permits were minor and regulations were sparse. In short, **Kansas** is once again, leading the way in promoting agricultural practices that are safe for the producer, and safe for the environment.

Now, I would like to address three amendments that we understand will be offered, to **SB 2**. One amendment being suggested, would require a separate, above ground holding tank. However, this would require another high volume pump, and additional fuel to run it, thereby doubling two of the cost factors for every chemigation unit. In addition, for an **800 gallon per minute well**, the holding tank would have to be about **15 feet tall**, cover **225 - 300 square feet** and hold **2400 - 3200 gallons**.

Another suggestion would be to require an operator to be present at the site during the entire course of the chemigation process, if certain chemicals are being used. This would require a constant presence for **18-24 hours or longer** in many cases. For other compounds, operators would be required to be present at the site at least once every hour. This would be an enforcement nightmare. How would state personnel monitor such a situation? It is simply not practical.

The third would require a great deal of additional paperwork, most of which is already required under the **Chemigation Safety Law** or the **Pesticide Law**. If these proposed amendments were enacted, the result would simply be to increase the cost in dollars, time and paperwork to the point that the practice of chemigation would be too costly to be practical.

I mentioned earlier, that the **Board of Agriculture** has sampled **216 wells** in the last two years. That was done by just one person, who has shown a great deal of initiative and creativity in finding ways to check out chemigation systems within the confines of his very limited budget. With the additional funding and personnel that has been requested, the **Board** can do an even better job of monitoring, education and enforcement. Being housed in the **Board of Agriculture**, chemigation enforcement personnel also have immediate access to a vast storehouse of knowledge of agricultural practices which is absolutely necessary to proper enforcement of the regulations.

In conclusion, on behalf of the **Kansas Association of Wheat Growers**, I would urge this committee to recommend **SB 2** favorable for passage, in its present form.



# PUBLIC POLICY STATEMENT

HOUSE COMMITTEE ON ENERGY AND NATURAL RESOURCES

RE: S.B. 2 -- Updating the Kansas Chemigation Safety Law

March 22, 1989  
Topeka, Kansas

Presented by:  
Bill R. Fuller, Assistant Director  
Public Affairs Division  
Kansas Farm Bureau

Chairman Spaniol and Members of the Committee:

My name is Bill Fuller. I am the Assistant Director of the Public Affairs Division of Kansas Farm Bureau. We appreciate this opportunity to express our **support** for **S.B. 2** on behalf of our farmers and ranchers who are members of the 105 county Farm Bureaus in Kansas.

Protecting water quality is a responsibility we must all share. In 1985, the agriculture industry demonstrated its commitment by recommending and supporting the creation of the Kansas Chemigation Safety Law. The review that began in this Committee last session, was continued by the Special Interim Committee on Agriculture and Livestock and continued this session by the Senate Committee on Agriculture has resulted in several desirable improvements.

We must not overlook the fact that the Kansas Chemigation Safety Law is relatively new. We believe the Kansas State Board

H Energy and NR  
3-22-89  
Attachment 3

of Agriculture is doing a good job administering the law with the limited resources...funds and personnel...provided by the 1985 Legislature. We believe the need for a higher level of supervision and education for chemigators has been established. Expanding the \$50 chemigation users permit to include \$10 for each additional point of diversion provides equity...chemigators with multiple wells will pay more than chemigators with a single well.

Functional antipollution devices are essential to guard against water contamination. Updating and clarifying the required equipment is very appropriate:

1. Waterline check valve.
2. Chemical injection line check valve.
3. Interlock system.
4. Vacuum relief device.
5. Automatic low pressure drain.

While our members do not condone water contamination, some have expressed concern about proposals to significantly increase penalties. The current fine is fixed at \$500. New Section 4 would increase the penalty up to \$5,000. In addition, New Section 5 grants civil penalty authority in an amount not less than \$100 nor more than \$5,000. We believe major emphasis must be on violations that actually threaten water quality, not technical violations. We believe the \$100 to \$5,000 proposed range addresses our concerns.

While S.B. 2 will increase regulation and monitoring of chemigation, we believe much more can be done to protect our

ground water by adding the concept of H.B. 2130 that is in this Committee to S.B. 2. H.B. 2130 is an attempt to build a meaningful regulatory program for chemigation through "privatization." The concept is based upon several years of positive experiences by the Kansas State Board of Agriculture in regulating scales in Kansas. H.B. 2130 will require annual inspection of chemigation equipment and systems by a registered technical representative of a chemigation testing and service company. The Kansas State Board of Agriculture is the enforcing agency that trains, certifies, and licenses these service companies. The Kansas State Board of Agriculture will have the important responsibility of spot-checking chemigators across the state and the responsibility to shut down equipment not meeting proper standards.

In closing, allow me to restate several important points:

1. We support S.B. 2.
2. We recommend adding the concept of privatization and H.B. 2130 to S.B. 2 to increase efforts to protect ground water.
3. We believe the Kansas State Board of Agriculture needs additional resources to adequately administer the chemigation safety law.
4. The Kansas State Board of Agriculture should continue to be the agency responsible for regulating the Chemigation Safety Act.

We will attempt to respond to any questions. Thank you!

Testimony by  
Joseph F. Harkins, Director  
Kansas Water Office  
to the  
House Committee on Energy and Natural Resources  
March 22, 1989

Re: Senate Bill No. 2

Taking appropriate precautions to prevent pollution is far more prudent than trying to remediate problems after the fact.

To my knowledge, Kansas does not have a major pollution problem associated with the practice of chemigation. I hope someone can stand here and make the same statement 25 years from now.

The current chemigation law was a bold step by the Kansas Legislature and agricultural leaders who supported it. The law represents one of the few times important environmental protection legislation was passed before a dramatic incident occurred and raised public attention.

The bill you are reviewing today contains several features that can improve the current program. I would like to emphasize one of these--the need for more field inspections. A greater number of inspections should increase the level of compliance. There is too much activity out there to be covered by one man.

We think this bill will improve the program and I join the Board of Agriculture in supporting its passage.

H Energy and NR  
3-22-89  
Attachment 4

>>Testimony before House Committee (Energy and Natural Resources)  
concerning SB2, 3-22-89<<

Hello, my name is Robert Grace, and I represent the Kansas Agricultural Aviation Association. Our association has approximately 150 total members: this number includes operators, pilot members and supplier members. I should note that some of our members have a conflict of interest in this issue.

Our concerns with chemigation are threefold:

1-We think chemigation represents a grave danger to the groundwaters of the state, water that all of us use daily.

2-We don't believe chemigation is presently being legislated on an equal par with other methods of pesticide application, principally aerial and ground applications, and

3-We feel that the inevitable environmental damages which these two shortcomings mandate may well result in a mis-informed public outcry against all forms of pesticide application, not just against chemigation.

Therefore, we are proposing modifications to SB2 which we think will alleviate these shortcomings in the present law.

As you can see, we propose dis-connecting the chemigation well from the groundwater via an air break. Given the fact that the present checkvalves are known to fail, and that the "flapper type" checkvalves now used in irrigation wells were designed only to prevent damage to impellor blades in a back-flow situation, and were not designed to protect the groundwater from contamination, we feel our proposal is the only fail-safe method by which one can safely use pesticides this close to the aquifer.

The Board of Agriculture has stated that at least 5% chemigating wells either do not have checkvalves or those checkvalves are not functioning. Since there are between 2,000 and 4,000 chemigating wells in Kansas, this means that somewhere between 110 and 200 chemigating units might have non-functioning checkvalves. We would also note that no other form of pesticide application is directly connected to the aquifer.

We have included some information from the University of Nebraska at Lincoln which mentions the air gap system.

Secondly, we are proposing that chemigation applications which use certain pesticides, identified by their Signal Words--which is a measure of their toxicity, be monitored on-site by a Certified Chemigation Equipment Operator continuously during the chemigation process. Again, if a ground or aerial applicator attempted to apply pesticides by a robotically controlled device--technology which, by the way, is available, at least in prototype form--then I am sure that many people would object.

H Energy and NR  
3-22-89  
Attachment 5



But, it is now a common, if not legal, practice for chemigators to apply pesticides for many hours without continuous, on-site monitoring, variable Kansas winds and inevitable mechanical breakdowns notwithstanding.

Finally, we propose that the record keeping requirements of the law be increased, again, on a par with the records which ground and aerial applicators must keep. The pesticides being applied are identical--there is no reason that the record keeping should differ.

Another point which is of interest is the results of recent water well testing by the Kansas Board of Agriculture. These results show a marked increase in the number of water wells contaminated by pesticides: from two in 1987 to six in 1988--this is a three fold increase and an alarming trend. (These six positive results are from 138 samples, indicating a positive rate of over 4 per cent!) Additionally, these wells are deep wells, with an average depth of over 260 feet. All of these wells are contaminated by pesticides which are commonly used in chemigation operations.

It is difficult--if not impossible--to remove all of the contaminants from the ground water once they are in place, and the groundwater is, of course, an irreplaceable resource. And, it must be noted, it is, of course, much cheaper to prevent groundwater contamination than it is to clean it up.

Also included is a newspaper article which describes an experiment conducted by the Kansas Geological Society at the University of Kansas. This experiment was designed to determine if atrazine, a common pesticide used in Kansas, could appear in the groundwater via leaching through the soil. Despite very high rates of atrazine applied, and extraordinary amounts of water applied, there was no evidence that such leaching could occur.

In fact, as you can see, one of the experimenters in the study mentions the possibility of well back siphoning as a possible cause for atrazine contaminated wells. This study, of course, further incriminates chemigation as a likely cause of the atrazine contamination in the water well studies.

We sincerely believe that the practice of chemigation has already contaminated portions of the aquifer, and that increasing amounts of contamination will surely occur until the present law is modified. Certainly, anyone who has explored the issue has heard anecdotal evidence which confirms the water well studies.

However, as of today, we have no clearcut evidence which indisputably links a specific chemigation accident with the present known groundwater contamination--no "smoking gun" exists.

The reason for this is two-fold, we believe:

First, the practice of chemigation, unlike other forms of pesticide application, is nearly invisible. And when a

Chemigator realizes that he or she has done the unthinkable and allowed a large quantity of pesticide to back-siphoned down the well, he or she has every reason not to mention this error to anyone.

Secondly, despite the able and admirable efforts of the Board of Agriculture to enforce the present chemigation law, they are simply under-staffed to accomplish the task. As you know, the Committee Report to the Legislative Coordinating Council noted that one Chemigation/Ecologist might be able to monitor 350 chemigation units per season, assuming no violations were encountered, and there are between 2,000 and 4,200 chemigation units in Kansas. Surely, this six to ten-fold level of under-staffing means that violations of the present laws are not being reported fully. As you also know, the same Committee Report committee heard testimony that 90% of the chemigation units checked were in violation of the present law.

The KAAA would like to see the present law improved to prevent the inevitable groundwater contamination hazard now presented.

If remedial action is not taken, we feel that all too soon, Kansas newspaper headlines will be broadcasting such an event, and the resulting public outcry might well be directed, however unfairly, at all forms of pesticide application, including the safe and proven ground and aerial methods.

Thank you for your time. We'd be happy to answer any questions which you might have.

3-22-89

1. The direct connection of pesticides to the groundwater must be eliminated by a system which allows the free fall of the underground water into a separate, above ground holding tank. This holding tank will then be used as a water supply source for the chemigation unit. This system would effectively eliminate groundwater contamination due to back-siphoning of the system. Safeguards must be in place to prevent the holding tank from over-filling and spilling. Additionally, the chemical injection tank must be placed downhill from the wellhead, or be diked, so that any accidental spillage from this tank will not contaminate the well. This change would allow the elimination of K.S.A. 2-3305 (a).

2. The Certified Chemigation Equipment Operator of a chemigation system shall effectively monitor the system during the chemigation process to assure that the system:

- Is properly calibrated and functioning properly;
- Does not cause pesticide drift or overspray;
- Does not backflow or contaminate waters of the state; and
- Does not create an unreasonable hazard to persons, property, or the environment.

If the pesticide being injected into the chemigation system is classified as a restricted-use pesticide, or bears on its label the signal word "WARNING", "DANGER", or "POISON", the Certified Chemigation Equipment Operator operating the chemigation system shall be present at the chemigation site during the entire course

of the chemigation process. If the pesticide being injected into the chemigation system bears on its label the signal word "CAUTION", the Certified Chemigation Equipment Operator operating the chemigation system shall be present at the chemigation site at least once every hour. A Certified Chemigation Equipment Operator is considered present at the chemigation site if the person is in a position from which the Certified Chemigation Equipment Operator can effectively observe and monitor the system. The Certified Chemigation Equipment Operator must effect an immediate shutdown of the system any time the system is distributing chemicals beyond the target field's boundaries onto adjoining public or private property, if such off-target distribution will cause damage to the adjoining property. The Certified Chemigation Equipment Operator will monitor the calibration of the unit to ensure proper, labeled rates of application.

3. The Certified Chemigation Equipment Operator of the chemigation units will keep records which show, in addition to the items required by 4-20-3 (a) (1) to (5), the beginning and ending time and date of all applications, the amount of pesticide applied (expressed as total amount of active ingredient), the number of acres treated, the wind direction and velocity, the temperature during the application (updated every 4 hours), the crop to which applied, the target of the application, and any shutdowns or problems encountered. Additionally, any spillage or loss of chemicals shall be recorded. These records will be made available to the Board of Agriculture upon request, and must be kept at the Licensed Operator's office for at least three years.

# Survey tests groundwater

LAWRENCE (HNS) — The herbicide atrazine, commonly used to kill broadleaf weeds, breaks down into non-toxic chemicals in some types of soil before it enters groundwater, according to a study by the Kansas Geological Survey at the University of Kansas.

Researchers applied atrazine to top soil at two sites in central Kansas; then tested the soil and the underlying ground water for evidence of the herbicide. Survey hydrologist Marios A. Sophocleous said that while researchers found no atrazine in the ground water, they did find high levels of nitrate and salts in several of the water samples.

An earlier farmstead study by Kansas State University had detected atrazine in four of 103 water-well samples collected statewide.

"In the (Geological) Survey study, we were trying to determine whether the chemical was able to reach the underlying aquifer when applied to the soil," Sophocleous said. "We found some atrazine in the soil, but we didn't detect any in the groundwater.

"The atrazine penetrated only a few feet into the soil because chemical reactions and micro-organisms in the soil broke it down into non-toxic chemicals," he said. "The half-life of atrazine under the conditions created in the study appears to be a couple of weeks, which means the amount of atrazine found in the soil after two weeks was only half the amount originally applied."

Although atrazine did not penetrate through the soil into the groundwater at the study sites, groundwater con-

tamination has occurred at other locations in the Midwest and further study is needed to determine the source, Sophocleous said.

One site, in Pratt County, had sandy soil; the soil at the other site, in Stafford County, contained more clay. Corn was grown at both locations.

Varying soil conditions, climates and farming techniques could affect atrazine breakdown, Sophocleous said. Atrazine also might enter groundwater directly through wells or through cracks in the soil and underlying bedrock, bypassing chemical reactions and micro-organisms that break it down in soil.

"Sources of atrazine found in contaminated groundwater in the Kansas farmstead study have not been determined, but the atrazine may have been mixed with well water during irrigation and then sucked back into the well," he said. "The chemical reactions that break down the atrazine in soil are much slower or don't occur at all when the atrazine combines direct-

ly with ground water."

To get a long-term effect in a short-term study, two to four times the amount of atrazine normally applied to a field was added at the two study sites. About 40 milligrams of atrazine per square foot of soil was applied to the Stafford County site, which was also saturated with 2,250 gallons of water. At the Pratt County site, 95 milligrams of atrazine per square foot of soil was added. Atrazine used in farming averages about 20 milligrams per square foot.

More than a year after the tests began, traces of atrazine are still detected in the soil, but it has never been found in the ground water, Sophocleous said.

voir. The chemical injection would be made following the second pump; thus there would be no direct connection of the chemical and the water source. Most Nebraska irrigation installations would require considerable modification to use this procedure.

Another method that could be used to eliminate any direct connection between the chemical and the water source is the use of a separate pipeline on a center pivot for the chemical. This would involve an addition to the center pivot system of a second smaller diameter pipeline with a spray nozzle system. The two-pipeline system would eliminate the mixing of the chemical in the irrigation water supply, but would require considerable modification of existing systems.

One method of eliminating any possible gravity flow of the chemical from the supply tank into the irrigation system and then potentially into the water source is to locate the injection point at a point higher than the chemical supply tank. This will not be possible for all irrigation systems or configurations used for water delivery to the system.

### SUMMARY

Chemical application with irrigation systems can be a safe and effective practice provided the proper management and precautions are carried out. The list in Table 1 summarizes the major steps necessary to prevent potential ground water contamination. Regulations adopted in the future at the federal, state or local level may change the requirements for chemical application. Keep abreast of future technology developments and regulatory requirements to assure that effective chemical applications are made and that adequate protection is provided.

From "Irrigation Safety Conference", Extension Service, University of Nebraska at Omaha.

... being applied. with a given sprinkler package on a center pivot, reducing the size (or depth) of the application (i.e. making a faster revolution) will reduce the potential for runoff.

#### Application to Surface Water

Avoid applying chemicals on those fields with permanent or semi-permanent surface water areas. Such application may adversely affect wildlife, non-target plants and animals, or ground water quality.

#### POSSIBLE PROTECTION ALTERNATIVES

Although the information presented above outlines equipment and procedures that can be used to provide protection against possible pollution, there are other procedures that could be used. One method of preventing direct contamination of the water supply is to use a two pump system with an air gap (or no direct connection) between the discharge of one pump and the intake of the second pump. In this situation one pump would open discharge the water into some type of reservoir with the second pump pumping from the reser-

3-20-89  
From Ken  
Willkie-

1988 (test data)

Kearny	C100	Chlorpyrifos	3.5	ug/liter
Haskell	C10130	Atrazine	5	microgram (l?) ug/liter
Steisbar	C10144	"	5.6	"
Ford	C10174	"	5.2	
Ford	C10175	TriFluorol	0.52	
Gray	C10176	Atrazine	2.8	

1987 (test data)

Gray	C10020	Atrazine	1.4	
Ford	C10041	"	2.2	

1987-1989 Kansas water  
well preliminary results.

# Kansas Natural Resource Council

Testimony presented before the House Energy & Natural Resources Committee  
SB 2: Relating to Chemigation

Charlene A. Stinard, Kansas Natural Resource Council

March 22, 1989

My name is Charlene Stinard, and I represent the 700 members of the Kansas Natural Resource Council, a non-profit organization committed to sustainable natural resource policies for the state of Kansas. My testimony is supported by the 2200 members of the Kansas Chapter of the Sierra Club, who share our concern about water resources.

SB 2 is the result of a great deal of discussion, during the last legislative session and during the interim, about the adequacy of the Kansas Chemigation Safety Law.

The real question before us is, "How safe do we want to be?"


SB 2 proposes some technical changes in the law which improve equipment requirements. The proposed increase in fees to include additional points of diversion makes the law more equitable, as well as providing new funding for the program. The certified chemigation equipment operators' examination can promote informed use of this potentially dangerous process.

There are several omissions of significance, however.

SB 2 fails to provide for the possibility of more frequent inspections. Annual inspections of equipment by Board of Agriculture staff, as discussed in interim hearings, or by private inspectors as proposed in HB 2130, would provide minimal assurance that wells and equipment are in compliance. Without increased funding from the Legislature, or an alternative inspection program, annual inspections cannot be carried out. To date, enforcement of the Chemigation Safety law has been inadequate because too few resources have been committed to field inspectors.

In addition, it seems a minimal safety precaution to require that fields under chemigation be identified by signs posted on their perimeter.

Monitoring data and water quality analyses to date are insufficient to assure that the chemigation process does not adversely affect surface and groundwater supplies. It is clear that once widespread contamination of groundwater by pesticides has occurred, it is likely to be too expensive, often impossible, to clean up. Even to test wells involves such costly lab analysis that it is not realistic to monitor all wells routinely. The only effective strategy is to prevent groundwater contamination in the first place.



H Energy and NR  
3-22-89  
Attachment 6



We therefore ask you to support 1) annual equipment inspections, 2) posting of fields under chemigation, and 3) comprehensive water quality monitoring.

When we know that wells used to chemigate are all permitted and applicators are trained and certified, when we have more sampling data indicating that the required equipment does prevent groundwater contamination, then we will be able to say, "This is safe enough."