

Approved: 4-4-97
Date

MINUTES OF THE SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES.

The meeting was called to order by Chairperson David Corbin at 8:05 a.m. on March 25, 1997 in Room 254-E of the Capitol.

All members were present.

Committee staff present: Raney Gilliland, Legislative Research Department
Mary Ann Torrence, Revisor of Statutes
Lila McClaflin, Committee Secretary

Conferees appearing before the committee:

James O'Connell, Secretary, Kansas Department of Health & Environment
Ron Hammerschmidt, Kansas Department of Health & Environment
Dennis Grams, P.E., Regional Administrator for EPA, Region 7
Gale Hutton, Water, Wetlands and Pesticides Division Director for EPA, Region 7
Edward C. Rowe, League of Women Voters
Charles Benjamin, Sierra Club and Kansas Natural Resource Council
Cynthia Abbott, National Audubon Society
Gary Wright, Wichita
Vic Robbins, Carbondale, KS
Terry Shistar, The Sierra Club

Others attending: See attached list

Substitute for HB 2368 - Surface water quality; application of certain stream designations and certain standards; creation of commission on surface water quality standards.

Chairperson Corbin announced that written testimony from DuPont Agricultural Products was distributed. Their testimony takes no position for or against the legislation. It was only to provide information on effective and cost competitive com herbicide alternatives to atrazine (Attachment 1).

James O'Connell, Secretary, Kansas Department of Health and Environment presented testimony from a neutral position. He said his testimony was to provide information, but they did support the establishment of a commission to conduct a review of most aspects of the water quality standards and related procedures that would advise the Governor, Legislature and KDHE (Attachment 2). Secretary and Ron Hammerschmidt responded to questions regarding 1994 standards. Responding to a question Mr. Hammerschmidt said in regard to how Kansas water quality compared to adjacent states, he wasn't sure. There was brief discussion on the fiscal note.

Dennis Grams, P. E., Regional Administrator, U. S. Environmental Protection Agency, Region VII, introduced Gale Hutton, who is their Water, Wetlands and Pesticides Division Director, he said that had been invited to the hearing to provide the committee with background information and to answer any questions that members might have. He said they had been working with state agencies and organization in an effort to provide information as to how the State can achieve its desired purposes with **Substitute House Bill 2368** and not conflict with provisions of the Clean Water Act. His testimony address the major components of the bill and states the EPA supported the appointment of a commission. (Attachment 3).

Mr. Grams and Mr. Hutton responded to questions. They stated that they would work with the state to accomplish their goal and maintain the clean water act, and support the appointment of a Kansas Special Commission. Regarding exemption of Kansas from the standards they thought it might be a good idea to go back and look at the standards for the clean water act. If the bill passes and it doesn't fall within the clean water act they will help the state stay in compliance with federal standards. They suggested the language in the bill might need some fine tuning. They would be glad to help work on the appropriate language.

Edward Rowe, the League of Women Voters of Kansas, testified in opposition to **HB 2368** because their fear is, if it is enacted, it will set a pattern that any time a constituent disagrees with some state agency's

CONTINUATION SHEET

MINUTES OF THE SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES, Room 254-E Statehouse, at 8:00 a.m. on March 25, 1997.

regulation the legislature will set aside the regulation, and set up a commission to "study the problem" (Attachment 4).

Charles M. Benjamin, Ph.D., J.D., Legislative Coordinator, Kansas Chapter of Sierra Club, and Kansas Natural Resource Council testified in opposition to the bill. He said the Clean Water Act, and its objective of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters have always received a great deal of popular support. His testimony also states that the estimated cost for municipal facilities to comply is over estimated (Attachment 5).

Cynthia Abbott, Kansas Audubon Council, believes that excellent water quality is an important goal to work for throughout the state. Upgrading is almost always expensive, yet it is considered part of life in a technological society (Attachment 6).

Gary Wright, citizen of Wichita, Kansas, testified in opposition to the bill. The city of Wichita has upgraded its treatment facilities, and he is sure the cities downstream appreciate it. Yet any break in the cycle upstream or downstream sours the effort and the water. We must ensure safe water for all aspects of life in Kansas (Attachment 7).

Vic Robbins, P. E., Carbondale, Ks, expressed strong opposition to this bill, as the state has already spent millions of dollars to develop the standards. The current standards were reviewed by outside experts and by the EPA, and they were presented to the public for review and comment in several hearings prior to their adoption. By Federal law, surface water quality standards must be reviewed every three years and revised to include any new scientific information (Attachment 8).

Terry Shistar, Pesticides and Toxic Chair, Kansas Sierra Club, opposed the bill. She expressed concern that the current domestic water supply criterion is not sufficiently protective of human health, and aquatic life. She thought that the passing of this bill would open the door for every special interest to seek a suspension of standards, not just for water, but air, waste and everything else. Attached to her testimony is a question and answer sheet about atrazine (Attachment 9).

Chairperson said he wanted to work the bill on the next day, March 26. The meeting adjourned at 9:00 a.m.

The next meeting is scheduled for March 26, 1997.

**SENATE ENERGY & NATURAL RESOURCES
COMMITTEE GUEST LIST**

DATE: 3-25-97

NAME	REPRESENTING
Paul Liecht	Ks. Biological Survey
Frank Ensd	Kansas Farmer Magazine
Dale Lambky	Ks. Dept. of Agric.
JIM WOLF	NORTH AMERICAN SALT Co.
E. R. "Woody" Moses	Ks. Agg. Prod. Assn.
Wendy Harms	"
Tom R. Tunnell	KANSAS FERT & CHEM ASSN.
LARRY Schulte	NORTH AMERICAN SALT Co.
U. Gale Hutton	U.S. EPA Region 7
Karl Muedener	KDNE
Rouena L. Michaels	U.S. EPA Region 7
Ann Lavaty	EPA
Dennis Grams	EPA Region 7
Terry Shistar	Ks. Sierra Club
Scott Lamons	CITY OF OMAHA
STEVE KEARNEY	KDMA
Chris McKenzie	League of Ks. Muncip.
Edie Suttler	City of Topeka
Ana Meyer	Ks. Governmental Consulting



DuPont Agricultural Products

DuPont Agricultural Products
Walker's Mill, Barley Mill Plaza
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Wilmington, DE 19830-0038

Statement of Clyde A. Roberts, Water Issues Manager
DuPont Agricultural Products
before the Kansas Senate Energy and Natural
Resources Committee
March 24, 1997

DuPont Agricultural Products appreciates the opportunity to submit this statement and provide the following information for the record during your consideration of HB 2368. We want to make clear at the beginning that DuPont takes no position for or against this legislation. During the course of discussions over HB 2368 in the last several weeks, however, DuPont became concerned that members of the Kansas legislature and regulatory agencies were not getting a complete picture about effective and cost competitive corn herbicide alternatives to atrazine.

DuPont manufactures dozens of effective products designed to provide farmers with the tools to produce high yields at competitive cost. Some contain atrazine; most do not. In recent years DuPont has pioneered research and development of a variety of new chemistry, low use rate, post emergent corn herbicides as alternatives to high use rate, preemergent corn herbicides. These products - sulfonylureas (SU) are applied to cornfields after weeds emerge, and typically require 1/2 oz. or less of active ingredient per acre for effective weed control. Research conducted by Kansas State University shows that low use rate, post emergent corn herbicides made by DuPont and several other companies provide excellent control of problematic weeds in Kansas. And while corn herbicide programs vary depending on cultivation practices, soil types, and weather conditions, low use rate, post emergent corn herbicides are cost competitive with many high use rate, soil applied corn herbicide programs. In addition, university trials in Illinois, Iowa, Kansas, Missouri and Nebraska show yields for new post emergent corn herbicides that are comparable to those of preemergent products.

While we recognize that atrazine remains an important weed control product for milo, we believe it is important to make clear that highly effective, cost competitive alternatives to atrazine for corn are available and in use by hundreds of farmers in Kansas. DuPont prides itself on listening to our customers, and farmers across Kansas have expressed their concerns to us about the impact of herbicides on their environment. DuPont and other companies continually engage in research and development of new products to assist the American farmer. One of the reasons DuPont pioneered post emergent corn SUs was because they represent an advancement in environmental protection while providing the kind of performance farmers demand. Basis[®] and Accent[®], for example, can be particularly useful for corn farmers in areas where ground or surface waters may be highly impacted by old chemistry, high use rate corn herbicides.

As noted above, DuPont takes no position on HB 2368. DuPont believes it very important, however, that lawmakers be provided all the facts necessary to make informed decisions. DuPont is concerned that debate about this legislation has created the mistaken impression that effective, cost competitive alternatives to atrazine do not exist for corn farmers in Kansas. While this may have been true a decade ago, it is not the case today.

DuPont welcomes the opportunity to provide you with additional information about how we believe our effective, economical, and environmentally sound SU corn herbicides can contribute to water quality protection and a healthy farm economy.

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Sen Energy + Nat Res
3-25-97
attachment 1

State of Kansas

Bill Graves



Governor

Department of Health and Environment
James J. O'Connell, Secretary

Testimony presented to

Senate Energy and Natural Resources Committee

by

The Kansas Department of Health and Environment

Substitute House Bill 2368

Mr. Chairman and Committee members, I appreciate the opportunity to speak with you about Substitute House Bill 2368. The Department took initial steps toward the triennial review of Kansas water quality standards beginning last September by conducting a series of public informational meetings around the state. In addition, a series of public meetings involving "focus group" discussions and public comment were conducted, with the last of these held about ten days ago. We believe this review process should be a very broad, open, objective public process that solicits and receives solid, scientifically based information and the concerns of Kansans that should be considered in revisions to the standards.

This bill calls for the establishment of a commission to conduct a review of most aspects of the water quality standards and related procedures and will advise the Governor, Legislature and KDHE. We believe this commission will be an excellent, objective forum to receive and evaluate technical and scientific information. The bill prescribes qualifications for its members and it offers a great opportunity for a balanced, unbiased, but knowledgeable body to play a key role in setting water quality standards. KDHE strongly supports these provisions of the bill.

The substitute bill provides a narrowly circumscribed set of limitations on the application of certain components of the 1994 water quality standards. These limitations would remain in effect for a specified period ending July 1, 1999. If a permittee elects to construct wastewater facilities to the less stringent ammonia and chloride criteria in effect during the limitation period, the bill imposes an obligation to bring such facilities into compliance with more stringent standards should they be subsequently adopted. I believe this provision is essential to focus on the risk of multi-million dollar projects that may not be in compliance shortly after they are built and to avoid having the purpose of the bill, that is to try to avoid unnecessary costs to comply with criteria that may be relaxed in the near future, have the unintended effects of prolonged delay in compliance with valid criteria and of compounding cost and controversy in the relatively near future.

*Sen Energy & Nat Rese
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attachment 2*

The reason for my appearance before you as a neutral conferee is not the result of disagreement with the basic purposes of the bill. It is because of concern that the suspension of criteria now applicable to the delegated federal Clean Water Act NPDES program in Kansas could lead to actions by the EPA, such as adoption by EPA of standards that Kansas would be required to use in permits; stringent review and modification of KDHE issued permits; reduction or cut-off of CWA funding; or ultimately, termination of delegation of CWA administration to Kansas.

I do not know, and want to be very clear about this, that EPA will take any of these actions. I would hope that EPA will recognize the limited nature of the bill's provisions, both in the criteria affected and the limited time period provided, but you should know these are possibilities. In addition, the Clean Water Act does authorize citizen suits to invoke the authority of the U. S. District Court to enforce the Act. As I stated at the outset, KDHE began an informal public process for water quality standards review last Fall and I believe the formation of the commission will strengthen that process. Our goal is to identify those elements of the standards that, based on sound scientific information, should be revised. Actions that are legalistic, adversarial or punitive in their approach, regardless of who initiates them, can be destructive to the many cooperative and positive efforts being made today in Kansas toward protecting water quality. Hopefully, cool heads and good will can prevail.

I'm sure that it is unintentional, but some of the information that has reached you in the news media and in testimony may create a couple of erroneous impressions. First, as I stated, KDHE initiated public meetings beginning last Fall with a goal of broad and open participation and review and revision of the standards based on "sound science." Much of what I've heard implies that the Agency is closed to change in the standards. You have heard testimony about the relative stringency of Kansas criteria for ammonia and that EPA has not yet approved the 1994 standards. That might suggest to some that EPA also believes the '94 standards are too stringent. The opposite is true.

You have heard that the biennial surface water quality report states that 99.7% of streams meet the ammonia standard. You should know that the report is based on miles of stream segments in or out of compliance and point sources for ammonia affect relatively short reaches in the streams so that an out of compliance facility will not affect the overall state figure very much.

Finally, some of what you have heard may have led some to believe that KDHE has followed an unreasonable attitude, demanding immediate compliance at any cost. Some of the facilities you have heard about do not now meet the 1987 standards and some have been operating with a permit that expired from two to six years ago. The Division of Environment staff have long followed a practice seeking to avoid instituting strong

Testimony on Sub. HB 2368

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enforcement measures and fines in recognition of the practical limitations faced by communities. Again, some of what you have heard would tend toward a different impression.

I want to close with just a brief word about the Supplemental Note's statement that KDHE believes that compensation of commission members can be accomplished within existing resources. This is not accurate. KDHE has stated that its duties in collaboration and working with the commission can be supported within its current staff and resources, but that funding for compensation of the commission and for any special studies or investigations it might request is not covered in the current agency resources.

Testimony presented by:

James J. O'Connell
Secretary
KS Department of Health and Environment

March 25, 1997

TESTIMONY OF
DENNIS GRAMS, P.E.
REGIONAL ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION VII
BEFORE THE
ENERGY AND NATURAL RESOURCES COMMITTEE
KANSAS STATE SENATE
MARCH 25, 1997

Thank you for inviting us here today. We are testifying as a neutral party on Substitute House Bill 2368. I have with me today, Gale Hutton, who is our Water, Wetlands and Pesticides Division Director. We were invited to this hearing to provide the Committee with background information and to answer any questions you may have.

I first want to outline the general process that we go through when authorizing Federal water programs to the states. The Clean Water Act provides the opportunity for states to decide whether or not they want to be responsible for the operation of the Federal programs in their states. In 1973 the State of Kansas made the decision to operate the Federal Clean Water Act programs in the State. Supporting this decision, the Legislature provided the necessary statutory authority and the Kansas Department of Health and Environment adopted the appropriate rules and regulations to put the program in place. States are required to provide at least a program that meets minimal Federal requirements. Kansas did this and received authorization of the Federal water programs.

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Attachment 3
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Since this original program acceptance, the State has operated the Clean Water Act programs for the U.S. Environmental Protection Agency (EPA) in Kansas.

We have been invited here today to answer questions about how Substitute House Bill 2368 conflicts with the provisions of the Federal Clean Water Act. I want to assure you that we do want to work very closely with you in an effort to maintain our very positive relationship with the State of Kansas.

During the past week we have been working with state agencies and organizations in an effort to provide information as to how the State can achieve its desired purposes with Substitute House Bill 2368 and yet not conflict with provisions of the Clean Water Act. I want to commit to you that we will continue to try and achieve these results.

I would like to address some of the major components of Substitute House Bill 2368:

- The Bill calls for creation of the Kansas special commission of surface water quality standards. EPA supports such a commission and will assist the State in any way requested.
- Atrazine: EPA will not oppose suspension of the Atrazine criterion for aquatic life, noting that the criterion is based on a 1986 EPA Advisory that current information indicates may be overprotective, and that the 3 ppb domestic water supply value remains in effect. It should be noted that waters not designated for domestic water supplies may be left with inadequate criteria for atrazine. To address this concern, Kansas could consider applying the 3 ppb value to all waters for which the 1 ppb value is suspended.
- Ammonia: EPA shares the Committee's interest in reviewing ammonia criteria and we are conducting an expedited review with final results due in June.

However, we do not expect our ammonia criteria to change dramatically from those currently recommended by EPA and adopted in 1994 by KDHE.

- Chloride: The bill's provision that prevents permits from requiring compliance with the 1994 standards for chlorides for at least 2 years is, like with the ammonia provision, inconsistent with federal law. In the case of chlorides, I suggest that EPA and Kansas work with dischargers to develop site-specific criteria and/or compliance schedules for chloride where appropriate.

Specific Aquatic Life Use: The bill requires KDHE to take certain actions regarding issuance of permits and allowable mixing zones in water bodies designated for special aquatic life uses. Any permits issued by KDHE must be in conformance with existing water quality standards.

Thank you for the opportunity to join you here today. We would be happy to provide answers to any questions you may have.

Comments in Opposition to House Bill 2368
Before the Senate Committee on Energy and Natural Resources
March 25, 1997

Chairman Corbin and members of the committee, I'm Edward Rowe, one of several volunteer lobbyists for the League of Women Voters of Kansas. Though the League is better known for voter education and for stands on issues like campaign finance, it has an equally long history of studying environmental issues and lobbying for clean water and clean air.

(I myself was drawn into joining League when I was drafted into teaching a freshman college course with a large environmental component. I suddenly was looking for sources on subject-matter I had not studied in years and I found League's balanced educational publications on environmental issues to be extremely helpful.)

This year I have been following KDHE's listening meetings on water quality standards and HB 2368 as it moved through the House. As I listened to the debate on HB 2368 in the House Committee on Environment, I heard an often-repeated question: Are the KDHE regulations based on "good science?" My response to the "good science" question is to ask if HB 2368 is "good policy."

My fear is that if HB 2368 is enacted it will set a pattern that any time a constituent disagrees with some state agency's regulation the Legislature will set the regulation aside and set up a commission to "study the problem."

Do we really want a whole series of commissions to re-plow the same ground that the scientific staffs of the agencies have already plowed? I would argue that it's a recipe for encouraging timidity in the agencies and reducing the effectiveness of the agencies we depend on to protect our health.

Let me tell you about a parallel situation in a town my parents used to live in. The town had a well-written housing code and an inspector who tried hard to enforce the code fairly. But landlords faced with tenant complaints about collapsed sewer lines, or leaky roofs, or unsafe furnaces learned they could call the city manager and he would stop the enforcement. In time the inspector became cynical and gave up on this part of his job. After many years the houses in the older neighborhoods were unsafe and unsanitary on the inside and looked rundown on the outside. Then the city had a chance to bring in a choice industry, but the industry turned down the city, and one of the reasons was the rundown condition of the housing for their workers. The manager's motivation was sincere enough; he wanted to keep peace in the community, but the long-term effect was to hurt the community.

In HB 2368 you are attempting to balance the interests of farmers, chemical manufacturers, municipal sewage plants and taxpayers and citizens. As you make your decision we hope that you will keep uppermost everyone's long-term interest in public health and a healthy environment.

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attachment 4

Testimony of
Charles M. Benjamin, Ph.D., J.D.
Legislative Coordinator
Kansas Chapter of Sierra Club
Kansas Natural Resource Council
935 S. Kansas Ave., Suite 200
Topeka, KS 66612

Before the Kansas Senate
Committee on Energy and Natural Resources
March 25, 1997

Re: Substitute for H.B. 2368

Introduction

Mr. Chairman, members of the Committee, thank you for the opportunity to testify in opposition to Substitute for H.B. 2368. Although this bill purports to be concerned with the technical and scientific basis of the surface water quality standards, H.B. 2368 seems to us a blatant attempt by certain special interest to replace science-based standards with standards that favor their interests over the interests of the citizens of Kansas.

Implementing the Clean Water Act in Kansas

Water quality standards are crucial to carrying out the Clean Water Act, which is a strong national policy protecting our nation's waters. The Clean Water Act, and its objective of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters, have always received a great deal of popular support. Here in Kansas, our current good fortune with abundant rainfall should not blind us to the fact that our state has frequently suffered prolonged droughts that forced us, as well as other living things that depend on our streams, lakes and wetlands, to depend on water supplies that were marginal in terms of quality and quantity.

The Clean Water Act establishes the national goal of eliminating discharges of pollutants into our surface waters while protecting the use of water for aquatic life, fishing, and swimming. The implementation of the Clean Water Act begins with the surface water quality standards. These regulations define uses for the surface waters of the state, establish criteria that will protect those uses, and lay out certain mechanisms used in putting the standards into practice.

It is important to realize that the Clean Water Act establishes a framework for protecting water quality. It gives the state certain flexibility, but is very restrictive in other ways. The intent of the law is to lower toxic discharges, thereby raising water quality. The state must protect the water for aquatic life, fishing, swimming, and other uses. The Act explicitly prohibits putting waste disposal ahead of any designated use of the state's surface waters. The state may develop water quality standards more stringent than those required by EPA, but not less stringent. The state must protect uses existing as of November 28, 1975. The state must set criteria that protect designated uses. The state may not weaken, and most assuredly not suspend or not enforce, criteria, in order to balance protection against economic impacts. If the state's standards do not meet these criteria, EPA may set standards for the state and/or take over the state's permitting program for discharges.

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Attachment 5 *5-1*

The Clean Water Act requires that the state update its water quality standards every three years. The standards in question in this bill were promulgated three years ago. They were issued four years late, only after we went to court. What this means is that it has been a long time since many pollutant dischargers have had to upgrade their facilities to meet the expectations based on current scientific knowledge.

In promulgating standards in 1994, KDHE bent over backwards to accommodate dischargers, especially some of those involved with this bill. EPA's recommended ammonia criterion had been based on levels toxic to many different fish, some of which did not occur in Kansas. KDHE, however, based its standards only on species present in Kansas, which eliminated consideration of some of the more sensitive species. However, the biggest change in application of the ammonia criterion comes from changing the size of the allowable mixing zone. Under the 1994 standards, dischargers into the majority of water bodies (83% of the stream miles, almost all of the lake acres) are now allowed to pollute twice as much of the water flow to toxic levels. That is because under the old standards, all mixing zones were limited to 25% of the 7Q10 flow, while under the 1994 standards, those waters (83% of stream miles, almost all of lake acres) classified as "expected aquatic life use" are now allowed 50% of the flow. "Special aquatic use waters" are still limited to the 25% mixing zone rule. Therefore, those who support H.B. 2368 are not asking for a stay in the application of more stringent standards, but are seeking to further degrade those streams with threatened or endangered species, or unusual combinations of habitats and biota.

Atrazine, for example, causes cancer in animals and is an endocrine disrupter in humans. Under the earlier standards, the domestic water supply criterion should have been set at the 1 in a million cancer risk level, which is 0.15 ug/1 (microgram per liter). In 1994, KDHE dropped the specific protection against cancer-causing substances and set the domestic water supply criterion at the level considered cost-effective for public water suppliers to provide after treatment. This is known as the maximum contaminant level or MCL. For atrazine, the MCL is 20 times as high as the cancer based number, 3 ug/1. The aquatic life protection criterion has now become the target of agribusiness, only because the human health criterion was weakened. But even the aquatic life criterion is 10 times as high as the concentration allowed in Europe.

It might appear that environmentalists, too, have reason to question the scientific basis of the water quality standards. There are some places where we believe the standards have been unjustifiably weakened. However, our disagreement is with the policy choices that were made rather than the science.

The True Story of Cost Estimates

You are being asked to vote on a very important piece of legislation based upon inaccurate cost figures. The costs of compliance with the 1994 ammonia standard that the League of Kansas Municipalities lists in their testimony are greatly inflated

The issue of compliance with the 1994 ammonia criteria was reviewed by the Legislative Division of Post Audit in their June 1995 performance audit titled "Reviewing the Department of Health and Environment's System for Assessing the Impact of Rules and Regulations Mandated by the Federal Government." In that report, the auditors looked at three environmental programs that had relatively recent regulatory changes prompted by major changes at the federal level. One of the programs examined was how KDHE assessed costs to comply with the Clean Water Act. The auditors compared KDHE's estimates with the actual costs incurred by cities that had

financed construction based on new regulations. It turns out that KDHE's estimates were very close to the actual costs incurred by cities in meeting the 1994 ammonia standards. The following is a quote from the post audit report.

"... In assessing the economic impact of new clean water regulations, the Bureau of Water developed cost estimates of the impact on affected municipal wastewater treatment plants across the State. (\$63 million capital, \$3.5 million operating) We talked with officials in five cities who had either completed or had financed future construction of wastewater treatment plants based on the new regulations, and they said the Bureau's estimates came very close to actual costs.

We also reviewed the manner in which the Bureau of Water estimated these costs for cities, and determined the Bureau appeared to have used a reasonable and comprehensive approach in estimating the costs for municipal wastewater treatment facilities needed to meet the requirements of the new clean water regulations."

p. 12, Performance Post Audit Report # 95-49 (See Appendix A).

Now lets look at the costs of compliance, as stated in the League of Municipalities testimony, compared to estimates by the Kansas Department of Health and Environment's Bureau of Water.

City	League of Municipalities Estimate Capital Costs	KDHE Estimate Capital Costs	Monthly Per Capita Capital and O&M Increase (KDHE)
Parsons	\$4,000,000	\$2,115,000	\$2.88-2.98
Fort Scott	\$7,000,000	\$5,543,000	\$8.48-8.85
Ottawa	\$8,000,000	\$1,213,000	\$1.83-1.89
Olathe	\$4,000,000	\$3,747,000	\$1.16-1.19
Topeka	\$20,000,000	\$5,924,000	\$0.93-0.95
Winfield	\$5,000,000	\$1,963,000	\$2.24-2.33
Johnson County	\$80,000,000	\$5,142,000	\$0.41-0.42
Medicine Lodge	\$2,300,000	\$1,411,000	\$6.25-6.56
Independence	\$15,000,000	\$1,800,000	\$1.86-1.96
Total	145,300,000	\$28,858,000	

(See Appendix B and Appendix C)

It is important to point out that the KDHE estimate, given to the Legislative post auditors in 1995, of the total costs of statewide compliance with the 1994 ammonia standard was \$66.5 million. Yet, the League comes up with an estimate for nine municipalities of \$145.3 million. KDHE's estimates for those same nine facilities are \$28.858 million. The League's estimates are more than five times greater than KDHE's estimates. Remember, KDHE's estimates were confirmed by cities that had completed or had financed future construction of wastewater treatment facilities to meet the 1994 ammonia standard.

It would appear that the League's estimates include not only the costs of complying with the 1994 ammonia criteria, but also include costs of proposed expansion, costs of complying with the 1987 standards, and costs associated with projected growth. (See Appendix D analysis of Johnson County plant and Appendix E analysis of Ft. Scott plant. These analyses show problems associated with outdated wastewater treatment systems.)

The Fairness Issue

There is also the question of fairness. According to KDHE, only 35 plants out of 900 municipal and commercial wastewater treatment plants still need to address 1994 standards. That means that you are being asked to suspend criteria for a small number of municipalities who are dragging their feet to implement modern standards. Wichita, for example, completed nitrification and disinfection of its wastewater treatment facility in 1990. The result, according to KDHE data, is a 10-fold reduction in ammonia and a 94-fold reduction in fecal coliform bacteria found in the Arkansas River south of the plant. (See Appendix F press report on 1996 state water quality report) With the completion of new wastewater treatment facilities in Newton and Great Bend, the Arkansas River is on its way toward recovery. Wichitans and citizens from cities around the state are to be commended for taking the responsibility for cleaning up their wastewater so that others downstream don't have to contend with their pollution. Why should the legislature give a "time-out" to a small group of municipalities who should have been carrying out the provisions of the Clean Water Act a long time ago?

The Legal Issues

Under the Clean Water Act of 1987 Congress and the President put forth the national policy of improving the Nation's surface waters. It is up the federal agency responsible for carrying out environmental laws, the Environmental Protection Agency (EPA), to put that intent into action. One way that EPA can carry out its mission is to contract with states to administer environmental laws. States typically sign a Memorandum of Agreement or some other contractual commitment to comply with federal guidelines. This is the case with the Clean Water Act as it applies to Kansas. Should the legislature pass, and the Governor sign, H.B. 2368 there would be grounds for EPA to withdraw the state's authority to carry out the Clean Water Act in Kansas under Section 123.63(a)(1)(ii) of the Code of Federal Regulations (See Appendix G). EPA has indicated in its memorandum from Dennis Grams, Region 7 Administrator, that Substitute for H.B. 2368 "will place the Kansas water quality program in noncompliance with the Clean Water Act." (See Appendix H) There is no provision in the law for a "time-out" as the proponents of this legislation would have you believe. Both the Boards of Directors of the Kansas Natural Resource Council and the Executive Committee of the Kansas Chapter of Sierra Club agree with the EPA position on Substitute for H.B. 2368. These organizations will take whatever actions are necessary under the law to see to it that EPA carries out its mandate to administer the Clean Water Act.

Conclusion

We respectfully ask that you take out the provisions of Substitute for H.B. 2368 that interfere with or prevent KDHE from implementing the 1994 standards for atrazine, chloride and ammonia. The current standards should have been implemented seven years ago, so let's not delay them any longer. The next revisions are underway, and that is where this debate belongs.

from: Performance Audit Report Reviewing the Department of Health and Environment's System for Assessing the Impact of Rules and Regulations Mandated by the Federal Government
Report # 95-49 of the Legislative Division of Post Audit, June 1995

The Department significantly underestimated costs for certain industries affected by the new clean water regulations. State law says economic impact statements should include a description of the cost of the regulation, who will bear the costs, and who will be affected by the regulation. In assessing the economic impact of new clean water regulations, the Bureau of Water developed cost estimates of the impact on affected municipal wastewater treatment plants across the State. (\$63 million capital, \$3.5 million operating) We talked with officials in five cities who had either completed or had financed future construction of wastewater treatment plants based on the new regulations, and they said the Bureau's estimates came very close to actual costs.

We also reviewed the manner in which the Bureau of Water estimated these costs for cities, and determined the Bureau appeared to have used a reasonable and comprehensive approach in estimating the costs for municipal wastewater treatment facilities. Bureau staff estimated capital and operating costs for new or expanded municipal wastewater treatment facilities needed to meet the requirements of the new clean water regulations.

However, the Bureau appeared to significantly underestimate costs for certain industries affected by these new regulations. Based on a Bureau assumption that industries would not be significantly affected, a cost estimate of less than \$1 million for all affected industries was included in the clean water economic impact statement. We surveyed three of 22 affected industries—Total Petroleum, Texaco Refinery, and Iowa Beef Processors. Two of the three industries told us they would incur a combined total cost of \$10 million to meet the requirements of the new regulations. The third said there would be no impact because they already were meeting the standards mandated by the regulation. If these three industries are at all representative of the 19 other industries affected by the regulations, the costs could be much higher.

We weren't able to determine whether the Division's cost estimates for the new solid waste regulations were accurate. This regulation has yet to be wholly enforced; many small landfills have until October 1995 to meet regulatory requirements. In reviewing the process the Bureau of Waste Management followed, however, we were able to conclude that the Bureau used a reasonable approach in estimating the impact of solid waste regulations. The Bureau used Department information obtained from landfill permits and landfill income in estimating the cost of solid waste regulations. The Department also used actual soil excavation and compaction contract costs from the Kansas Department of Transportation in estimating the costs of similar work for landfills.

None of the Economic Impact Statements We Reviewed Satisfied All the Requirements of State Law

State law requires that economic impact statements contain the four specific elements shown on the next page:

Appendix B

**Economic Impact Statement for Proposed Amendments to
K.A.R. 28-16-28b through 28-16-28f
(Kansas Water Quality Regulations)**

I. Introduction

The Department of Health and Environment has the responsibility for the development and adoption of water quality standards under the provisions of the Federal Clean Water Act. These standards are reviewed and revised periodically. The draft revisions dated April 7, 1994 are the current revision of these standards. The Water Quality Standards address a range of topics including general provisions; surface water use designation and classification; surface water quality criteria and administration of surface water quality standards. Since December 22, 1992 the state of Kansas has been operating under the provisions of 40 CFR Part 131 Part II. This federal regulation was imposed on a number of states adopting water quality criteria for a variety of toxic materials including synthetic organic compounds, metals, and pesticides. Criteria for the compounds in 40 CFR 131 Part II are included in the revised Kansas Water Quality Standards.

The proposed regulations K.A.R. 28-16-28b through 28-16-28f are revisions of the existing regulations last amended in May, 1987. Changes are proposed to a number of sections. These changes include the addition or revision of a number of definitions; clarification of regulatory language, e.g. antidegradation and mixing zones; revisions to the numeric criteria; and designation of outstanding natural resources waters; the application of use attainability analysis to modify the designated use of surface waters. The proposed regulations also adopt by reference the Kansas Surface Water Register. This document is an extensive list of the Kansas surface waters and their designated uses.

The Kansas Water Quality Standards are used by the department in the development of permit conditions for the National Pollution Discharge Elimination Systems, NPDES program. These permits are held by local units of governments, public utilities, private business and the public. While the federal Clean Water Act requires a review of the water quality standards on a triennial, i.e. three year, cycle, the NPDES permits are typically issued on a five year basis. The requirements of the revised surface water quality standards are not imposed on facilities operating under an existing permit until the permit is reissued or renewed under the five year cycle. Facilities for which a new permit is issued are subject to the water quality standards in place at the time of permit issuance. These standards are also used by the department as benchmarks in reviewing water quality trends throughout the state.

II. Methodology

The proposed regulations K.A.R. 28-16-28b through 28-16-28f were prepared by the Office of Science and Support in consultation with the Bureau of Water. Subsequent to the development of the proposed regulations and accompanying documents, e.g. Kansas Surface Water Register, staff of the Office of Science and Support and the Bureau of Water

conducted a review of the proposed regulations to identify possible fiscal impacts upon the agency and the regulated community.

Upon completion of the review of possible impacts, staff of the Office of Science and Support reviewed existing monitoring data and other empirical data, designated uses and locational data for facilities permitted under the delegated NPDES program. Utilizing this data, Office of Science and Support staff developed a comprehensive database for use by both OSS and Bureau of Water in completing the fiscal impact estimates. Staff of the Bureau of Water conducted a review of facility design and operation, facility type, and other factual information for permitted facilities. The staff of the Bureau of Water also developed cost estimates for the determination of potential costs using worst case conditions if a potential water quality violation from the point source discharger was identified. Staff of the Bureau of Water developed the final fiscal impact estimates based upon the information developed in this process.

No attempt was made to identify the potential benefits to ecological systems, improvements in fisheries, migratory bird habitat or other wildlife effects, enhancement of scenic areas and other tourism related effects, or other direct or indirect benefits accrued by adoption of these regulations. All costs cited are estimates based upon the professional judgement of the KDHE staff. The aggregate estimates for the fiscal impacts are based upon estimates for individual facilities. The estimates for individual facilities should not be used for project planning but rather additional site specific professional evaluation should be performed. While individual treatment plant costs could be questioned, the aggregate estimate is considered accurate. Only aggregate costs are included in this economic impact statement.

III. Potential Fiscal Impacts

Direct fiscal impacts of the proposed regulations were examined for the Kansas Department of Health and Environment and facilities regulated by the NPDES program administered by KDHE. These facilities include confined animal feeding operations, municipal wastewater treatment discharges, public utilities and industrial and manufacturing facilities. Each of these regulated entities was reviewed for potential direct fiscal impacts.

A. Impact on KDHE

Since the department currently conducts a number of activities under state accepted administration of the NPDES program, the revision of the surface water quality standards will have a minimal fiscal impact on the agency. The permit application and water quality certification programs of the agency may require modification to accommodate regulatory changes. However, the effects of the revisions should not result in a discernable fiscal impact on the agency. Continued delay in revision of the 1987 Kansas Water Quality standards may result in additional federal actions beyond the current impacts of 40 CFR 131. These actions could include imposition of additional federal rules and loss of NPDES program status.

B. Fiscal Impact on Agriculture

A number of confined animal feeding facilities are regulated under federal NPDES requirements. These operations are, however, permitted as non-discharging facilities which do not discharge to the surface waters of the state under normal climatic conditions. The discharges which do occur at the confined feeding facilities under abnormal rainfall are not regulated by the surface water quality regulations. Therefore, there is no direct fiscal impact of the proposed regulations on the confined animal feeding facilities. Similarly, the department does not directly administer programs for the control of agricultural practices. The KDHE Nonpoint Source, NPS, program does work with agricultural entities and the State Conservation Commission using a cooperative approach to address a variety of environmental issues. The criteria listed in the proposed regulations may be utilized as a benchmark in the NPS program. Therefore, the department cannot identify any direct fiscal impact of the proposed water quality standards on the agricultural industry.

C. Fiscal Impact on Municipal Wastewater Treatment Facilities

The proposed water quality standards will have an impact on municipal wastewater treatment facilities. The study conducted by the Bureau of Water and the Office of Science and Support identified three potential fiscal impacts related to the proposed regulations. The first is the impact of revised ammonia discharge limits. The second is the impact of revised toxic limits, *i.e.* metals discharge limitations. Finally, potential impacts of disinfection requirements were also examined.

Ammonia

The proposed regulations guide development of numeric ammonia discharge limits based upon the ambient temperature, stream flow, and the pH of the receiving stream. In addition, changes in the classification of some streams for aquatic life support have been proposed. These two changes, separately or together, may result in the imposition of more restrictive ammonia limitations on a number of municipal wastewater treatment plants. These limits will result in a requirement for modification of plant operation and maintenance, and additional capital costs for some plants. Approximately 60 plants may be required to implement these changes. The estimated fiscal impact of the changes related to these proposed regulation related to ammonia treatment is \$63 million capital cost and \$3.5 million additional annual operational cost. A portion of this cost, less than \$1 million is related to changes in stream designations.

An estimated \$28.5 million in expenditures are not included in the above cost as they have or will be incurred in the near future to meet existing requirements for ammonia removal. These expenditures would have been necessary without the adoption of the proposed regulations.

The waste water treatment facilities affected by the proposed regulatory change are limited to mechanical treatment facilities and a few heavily loaded waste stabilization pond systems. The majority of facilities using waste stabilization pond treatment are not affected under the proposed provision of K.A.R. 28-16-28(c)(d)(3) which reads:

"(3) Waste stabilization ponds meeting "Minimum Standards of Design" as published by the department on August 17, 1978 and hereby adopted by reference, are accepted as providing disinfection and ammonia removal."

Some existing mechanical wastewater treatment facilities can meet the more stringent ammonia discharger limits through existing processes or with operational changes. No capital expenditures will be required for these facilities.

Metals

The proposed regulations adopt numeric criteria for seven metals based upon the hardness of the water in the receiving stream. The proposed regulations also acknowledge the toxicological impacts of dissolved metals on aquatic life versus the more traditional total metal criteria. An adjustment factor, as shown below, is used to calculate the relative amount of dissolved metal species. This calculation may also be modified through use of water effects ratio, WER.

<u>Element</u>	<u>Adjustment Factor</u>	
	<u>Chronic</u>	<u>Acute</u>
Cadmium	1.2	1.2
Chromium III	1.2	1.2
Copper	1.2	1.2
Lead	2.0	4.0
Nickel	1.2	1.2
Silver	no criteria	1.2
Zinc	1.2	1.2

The current federal toxics regulations as applicable to Kansas, 40 CFR 131 Part II, includes discharge limitations for these same seven metals. The federally imposed criteria do not allow for modifications of the criteria to allow for the effects of dissolved metals versus total metals. The federal criteria do use a hardness dependent calculation. The impact of the metal criteria in the proposed regulations are less than those imposed by the federal criteria.

Disinfection (Fecal Coliform)

A third potential direct fiscal impact, the cost of disinfecting wastewater treatment plant discharge to reduce the amount of fecal coliform was also examined. The proposed standards do not impose any disinfection requirements beyond those now implemented. A number of facilities, however, will be required, based upon human health protection, to begin or expand their disinfection activities in the next few years in order to meet the requirements of current water quality standards. These disinfection requirements may result in a need for modification of plant operation and maintenance, and perhaps additional capital costs. These costs however cannot be attributed to the proposed regulations.

D. Fiscal Impact on Industrial Wastewater Treatment Facilities

The proposed water quality standards will also have an effect on a small number of industrial ammonia discharge limits. These impacts will be felt by less than five facilities which may be required to perform capital improvements. The aggregate cost of these improvements is estimated to be less than \$1 million. There should be no impacts of either metals removal or disinfection requirements on the permitted industrial NPDES discharges.

E. Summary

The Department of Health and Environment proposes modifications to K.A.R. 28-16-28b through 28-16-28f as required under the provisions of the Federal Clean Water Act and 40 CFR 131. The fiscal impact of these changes on the agency will be minimal. The fiscal impact of these regulatory changes on the agricultural sector will also be minimal. Only the revision of the ammonia criteria will affect municipal wastewater treatment facilities. The estimated cost for municipal facilities is approximately \$63 million over the requirements of the existing standards. A much lesser fiscal impact will be felt by industrial dischargers with an aggregate cost of less than \$1 million for ammonia discharge control.

Appendix C

3/21/94

ECONOMIC ANALYSIS OF PROPOSED AMMONIA WATER QUALITY CRITERIA
 ASSIGNMENT OF COST TO IMPACTED MUNICIPALITIES
 (ASSUMED INTEREST RATES: BOND FINANCING, 5%; SRF FINANCING, 4%)

DISCHARGER	UPGRADE COSTS (THOUSANDS OF DOLLARS)		PER CAPITA INCREASE IN MONTHLY UTILITY BILLS	
	CAPITAL	O&M	BOND FINANCING	SRF FINANCING
FT SCOTT MWWTP	5543	513	8.85	8.48
HIAWATHA N MWWTP	2565	193	7.14	6.75
MEDICINE LODGE MWWTP	1411	110	6.56	6.25
HIAWATHA S MWWTP	2391	172	6.45	6.02
BELLEVILLE MWWTP	1511	115	5.67	5.34
ELLINWOOD MWWTP	880	73	5.14	4.93
GARDNER MWWTP	733	45	5.01	4.88
PARK CITY MWWTP	2387	180	4.81	4.55
AUBURN MWWTP	228	3	4.25	4.11
MULVANE MWWTP	1750	137	3.70	3.49
RUSSELL MWWTP	930	50	3.57	3.46
CARBONDALE MWWTP	380	6	3.36	3.22
PRATT MWWTP	1410	67	3.24	3.13
HAYSVILLE MWWTP	2017	162	3.23	3.09
ASHLAND MWWTP	647	8	3.14	2.90
GREAT BEND MAIN MWWTP	2547	370	3.10	3.01
CHANUTE MWWTP	1608	71	3.07	2.98
BASEHOR SOUTH MWWTP	342	6	3.02	2.90
PARSONS MWWTP	2115	97	2.98	2.88
COFFEYVILLE MWWTP	2257	103	2.96	2.87
HOLTON MWWTP	687	56	2.90	2.78
BELOIT MWWTP	733	45	2.74	2.64
MEADE MWWTP	761	3	2.46	2.18
CALDWELL MWWTP	696	8	2.46	2.17
DOUGLASS MWWTP	220	3	2.45	2.38
BASEHOR NORTH MWWTP	240	3	2.44	2.36
PITTSBURG MWWTP	2620	291	2.35	2.27
WINFIELD MWWTP	1963	176	2.33	2.24
EL DORADO MWWTP	1410	65	2.25	2.18
AUGUSTA MWWTP	930	50	2.16	2.10
LYNDON MWWTP	495	6	2.14	1.85
FRONTENAC MWWTP	340	5	2.13	2.06
ATCHISON MWWTP	150	0	2.05	2.04
KENSINGTON MWWTP	381	3	2.04	1.66
GYPSEUM MWWTP	323	3	2.03	1.55
VICTORIA MWWTP	535	6	2.01	1.76
BENNINGTON MWWTP	381	3	1.99	1.62
INDEPENDENCE MWWTP	1300	30	1.96	1.86
ELLSWORTH MWWTP	155	6	1.94	1.90
OTTAWA MWWTP	1213	39	1.89	1.83
LEON MWWTP	323	3	1.05	0.80
TOPEKA /OAKLAND MWWTP	5924	206	0.95	0.93
OLATHE /CEDAR CR MWWTP	1747	145	0.66	0.65
MAIZE MWWTP	838	6	0.61	0.31
EMPORIA MWWTP	2170	246	0.57	0.52

5-11

DISCHARGER	UPGRADE COSTS (THOUSANDS OF DOLLARS)		PER CAPITA INCREASE IN MONTHLY UTILITY BILLS	
	CAPITAL	O&M	BOND FINANCING	SRF FINANCING
OLATHE /MAIN MWWTP	2000	91	0.53	0.51
PEABODY MWWTP	647	8	0.36	0.10
WICHITA MWWTP	6000	375	0.36	0.35
ELLIS MWWTP	952	8	0.29	0.00
JO CO /MSD INDIAN CR.	0	425	0.23	0.23
JO CO /MISSION/TURKEY MWWTP	5142	145	0.19	0.18

Appendix D

SPECTRUM Technologists

3-24-97

609 N. 72nd St.
Kansas City, KS 66112
(913) 334-0556

Charles Benjamin
Sierra Club
935 1/2 S. Kansas Av.
Topeka, Ks. 66612

Subj: Status of Turkey Creek and Mission Township
sewage treatment plants in Johnson Co., Ks.

Dear Charles,

Per your request I have examined KDHE files covering the subject sewage treatment plants and report the following information:

1. The subject plants are operating on a permit issued on June 11, 1986 and which expired June 10, 1991. These plants have never been subject to effluent limits relating to either the 1987 or 1994 Kansas water quality standards. The expired permit contains no effluent limit for ammonia.
2. The Mission Township plant was constructed in 1947 and treats an average daily flow of 7 million gallons per day (MGD). The Turkey Creek plant was constructed in 1956 and treats an average daily flow of 8 MGD. Effluent from both these plants is now discharged through a common pipe into Turkey Creek. Both plants have gone through upgrades through the years, but both still use the basic trickling filter treatment process that is not often used for new plant construction.
3. This sewer system has a serious problem with infiltration and inflow (leaky sewers) and is overloaded during wet weather despite the expenditure of \$60 million over ten years to reduce this problem. KDHE files contain reports of bypasses of partially treated sewage to Brush, Rock, and Turkeys Creeks in the years 1992-1996 including 135 million gallons in 1992 and 274 million gallons in 1995. Two bypass events were reported in June of 1996.

According to monitoring data, these plants generally meet the effluent limits in their expired 1986 permit. However, during wet weather, large volumes of highly dilute sewage flows through the plant, and contaminant removal efficiency tends to decline. In May of 1995 the combined plant effluents did not achieve the required 85% removal of BOD and total suspended solids as calculated on a monthly average. The plant removed less than 70% of BOD and/or total suspended solids in 4 of 9 tests conducted during that month.

This data suggests that Johnson County will at some point have to upgrade their facilities to solve this problem regardless of what happens with the ammonia standard.

4. In recent years the KDHE has conducted an assessment of the toxicity of effluent from the Mission and Turkey Creek plants. This effluent is estimated to comprise about 90% of the flow of Turkey Creek during low flow conditions. Turkey Creek is classified for expected aquatic use, and KDHE states that the stream is potentially suitable for high quality aquatic habitat. In comments submitted in objection to the proposed new permit, Johnson County stated that an aquatic life support use designation may not be appropriate because Turkey Creek has been extensively channelized and, in some places, functions essentially as a storm sewer.

In most tests the effluent has been classified as toxic to certain aquatic test animals. In the most recent test we found in the files, this toxicity was attributed to ammonia.

5. According to EPA estimates, updated to 1996 dollars, the addition of full nitrification treatment for ammonia removal would cost, typically, about \$12 million total for the subject plants. This estimate would not account for unusual circumstances.

6. These plants are required to monitor for ammonia in the effluent but do not have to meet an effluent limit. We compared ammonia test results in 1996 to the ammonia standards listed in the draft permit issued in May 1994 which apparently relate to the 1987 water quality standards:

January: exceedances in three of four weeks by about 20%
February: exceedances in one of four weeks by about 20%
March: exceedances in all four weeks by up to 100%
April: exceedances in all four weeks by up to 100%
May: exceedances in one of four weeks by about 35%
June: no exceedances
July: exceedances in two of four weeks by about 30%
Aug: no exceedances
Sept: exceedances in two of four weeks (25 & 130% resp.)
Oct.: one slight exceedance on one day
Nov. No exceedances
Dec. No exceedances

In 1996 the subject plants did not regularly and significantly exceed the ammonia limit related to 1987 water quality standards except in March and April. This suggests that the 1987 water quality limit could be met with something less than a full scale, high efficiency nitrification process addition, referred to in no. 5 above. In any event Johnson Co. should provide a detailed cost analysis to justify their higher estimate to meet the 1994 standard.

7. An administrative procedure is available to Johnson Co. for relief from the 1994 water quality requirement for ammonia. It's called a use attainability analysis which is currently underway.

Please advise if we can be of further assistance.

Sincerely,



Craig S. Volland, QEP
President

Appendix E

SPECTRUM *Technologists*

609 N. 72nd St.
Kansas City, KS 66112
(913) 334-0556

3-24-97

Charles Benjamin
Sierra Club
935 1/2 S. Kansas Av.
Topeka, Ks. 66612

Subj: Status of Ft. Scott, Ks.
Sewage Treatment Plant

Dear Charles,

Per your request I have examined KDHE files covering the subject sewage treatment plant and report the following information:

1. The Ft. Scott sewage treatment plant is a 3 cell waste stabilization pond constructed in 1984 with a design capacity of 3 Million gallons per day (MGD). It is currently operating on a permit issued July 26, 1994 covering conventional pollutants and including effluent limits for ammonia and coliform bacteria that will go into effect April 1, 1997. These latter limits are based on the 1987 water quality standards.
2. The Ft. Scott sewer system suffers from a serious problem with infiltration and inflow (leaky sewers) during wet weather. In recent years peak daily flows have exceeded design flow by a factor up to 6 times. The City is under a consent order to correct this problem.
3. This plant has violated its (monthly) total suspended solids limit 3 times since the current permit was issued and 5 additional times since March 20, 1991 when its permit was previously renewed.
4. The plant would have violated the proposed (1987 water quality) ammonia limits 10 times since July 26, 1994. The plant also would have violated the proposed coliform bacteria limits in 14 of 26 months from January 1995 to February, 1997. Upgrades necessary to meet these (1987 water quality based) limits will not be completed by the effective date of April 1, 1997 specified in the current permit.
5. The city hired an engineering firm which has challenged both the contact recreation and the special aquatic life use designations of the Marmaton River. KDHE has vigorously defended their designations with detailed critiques of the engineering firms' reports. In any event, the aforementioned inability of the plant to meet the 1987 ammonia limits, and the attached charts describing coliform bacteria contamination,

support the general position that the Ft. Scott plant is significantly degrading the quality of the Marmaton River. In particular, coliform counts, in many instances, do not support even a noncontact recreation criterion. The State of Missouri has identified a segment of the Marmaton River, just downstream of the subject plant, as impaired by ammonia and BOD.

This sewer system suffers from a number of technical and operating difficulties that will be expensive to fix regardless of what happens with the 1994 water quality standards.

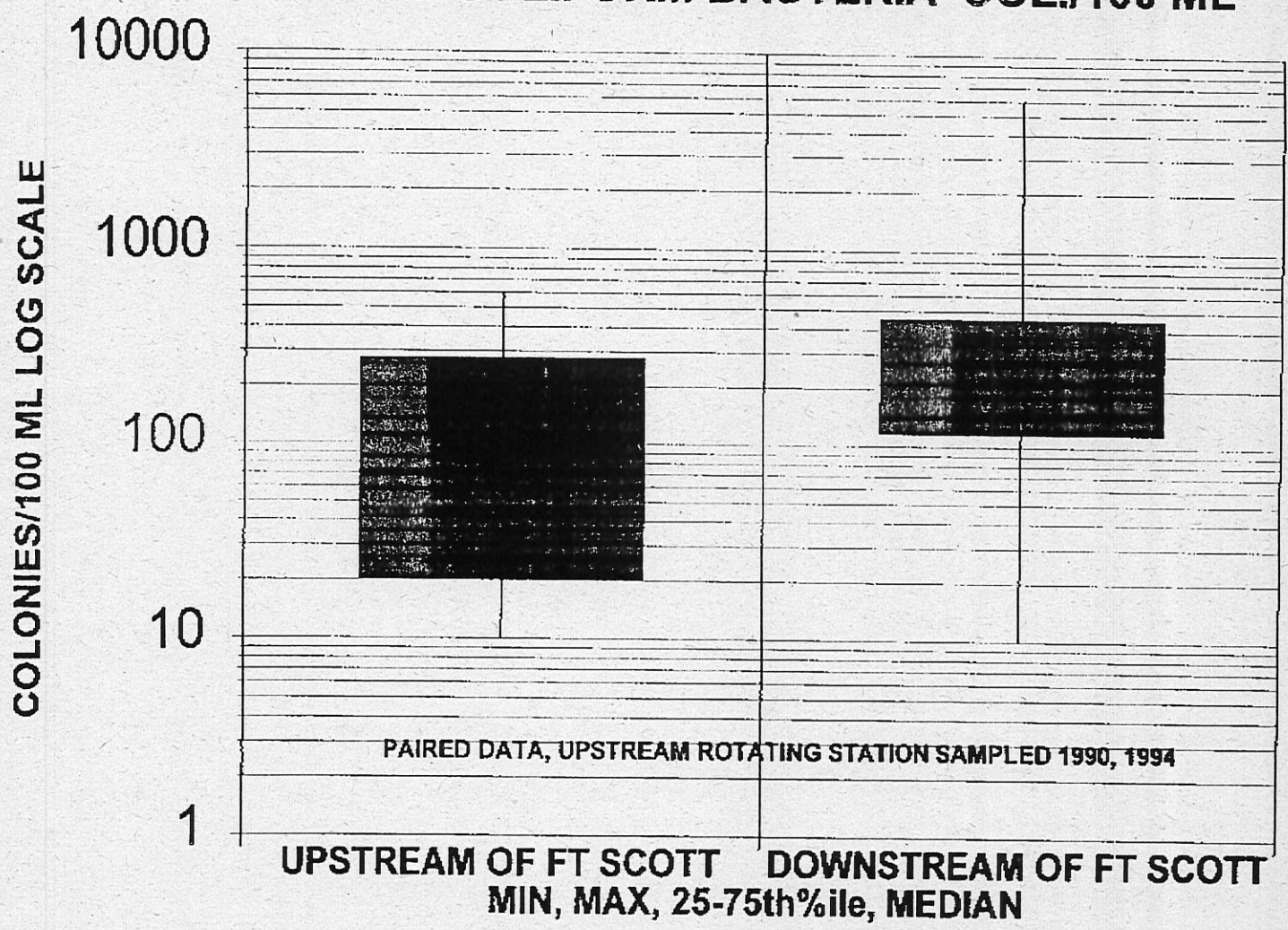
If we can be of further assistance, please advise.

Sincerely,



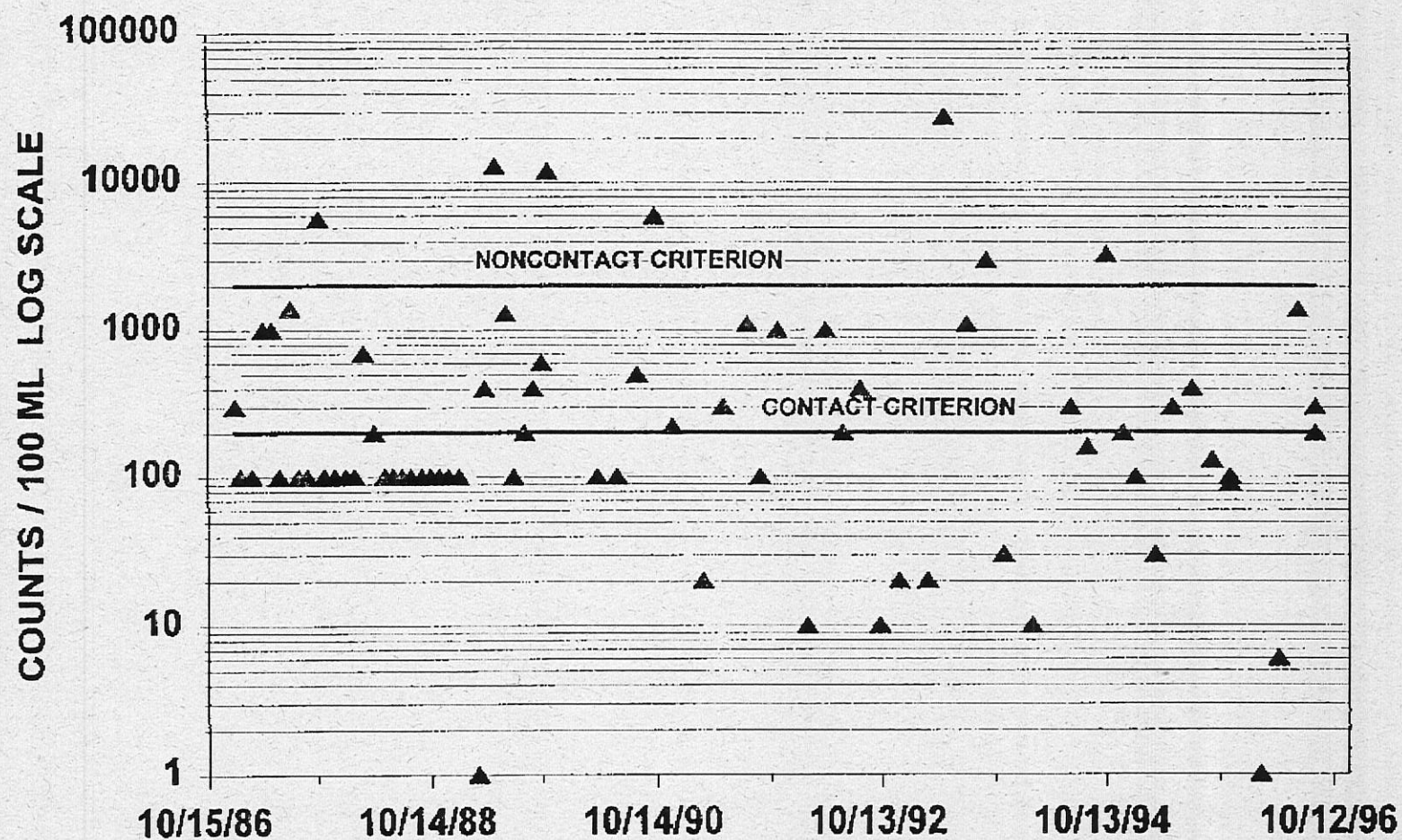
Craig S. Volland, QEP
President

MARMATON RIVER FECAL COLIFORM BACTERIA COL./100 ML



5-17

MARMATON RIVER DOWNSTREAM OF FT. SCOTT FECAL COLIFORM BACTERIA



5-18

71157 State issues water quality report

Topeka--The Kansas Department of Health and Environment has released its 1996 report on Kansas water quality. Federal law requires states to prepare this biennial water quality report.

"We've seen some improvements in water quality and have high expectations for further progress," said James J. O'Connell, Secretary of Health and Environment. "But, because this report involves data from years overlapping with the 1994 report, it's too early to expect a measurable impact."

EPA guidance for preparing this report continues to allow for a wide variety of assessment methodologies among states and EPA regions. The lack of consistency severely hampers states in preparing reports. Any attempt to compare results of these reports must account for the differences in states' beneficial use designations, water quality criteria and the strength of the water quality monitoring programs.

In the report, the department performed two assessments of water quality data gathered in 1991-1995. The first assessment -- using the most lenient federal guidance -- showed that 73% of streams met their designated uses. This assessment should be used in any attempt to compare Kansas water quality with other states because it provides a common basis for comparison.

In order to compare with previous reports and to allow for the analysis of trends in beneficial use support over time, KDHE elected in the 1996 report to also examine data consistent with earlier approaches. Such analysis shows that 97% of the assessed stream miles did not fully support all their designated uses.

Almost 40% of the "non-supporting" stream segments support all but one use, and all streams support at least one designated use. The water quality data analyzed in the

1996 report covered a period from 1991 to 1995. The 1994 and 1996 reports share three years of overlapping data, so improvements were difficult to document.

Stream data indicated the sources responsible for pollution loadings and beneficial use impairments included agriculture, habitat modification, natural sources, resource extraction, hydro modification and groundwater withdrawal. Impairments attributable to point sources were substantially less widespread than those attributable to nonpoint sources.

Chloride and sulfate are the parameters most often associated with impairments of the domestic water supply use in streams. Most instances of salt contamination are naturally occurring or result from historical activities and pose no acute threat to public health.

Lake trophic state is a means to categorize lakes based on algal production and relates well as an indicator of overall support of designated uses. The most important contributors to excessive lake trophic state in Kansas are agricultural activities, municipal point sources and natural sources of pollution.

Of the 175,260 assessed lake acres, almost 70% have a stable trophic state over time. About 27% showed observable degradation in trophic state while about one percent showed observable improvement.

A number of public domestic water supply lakes are impacted by pesticides and taste and odor problems. KDHE staff are working with the drinking water suppliers to address these concerns.

Kansas groundwater is generally very hard and often contains relatively high concentrations of total dissolved solids, manganese, and iron. These constituents normally pose no serious health concerns, however, they may create aesthetic problems such as scale deposits, stains, odors, and undesir-

able taste. During the 1991-1995 reporting cycle, high nitrate concentrations accounted for 81 of 126 exceedences of the federal drinking water maximum contaminant levels in groundwater. The majority of the samples with excessive levels of nitrate were obtained from shallow wells (less than 100 feet) or in wells located in areas of sandy soil and high water tables.

"The implementation of more stringent permit limits and the resulting upgrades of municipal and industrial wastewater treatment facilities have resulted in several notable improvements in surface water quality," said O'Connell.

An example of water quality improvement was the completion of nitrification and disinfection facilities at the Wichita wastewater treatment facility in 1990 which dramatically reduced concentrations of ammonia and fecal coliform bacteria in the Arkansas River. Comparisons of water quality data for the periods 1987-1989 versus 1991-1993 revealed a 10-fold reduction in the median level of ammonia and a 94-fold reduction in the median concentration of fecal coliform bacteria.

"As the number of point sources contributing to water quality impairments continues to decline, efforts like the Governor's Water Quality Initiative will play an increasingly more important role in addressing nonpoint source related water problems," said O'Connell.

Kansas has one of the most extensive surface water quality monitoring networks in the nation. During the 1991-1995 reporting cycle, data were obtained from 265 stream chemistry monitoring sites. Additional data were obtained from 59 biological monitoring stations, 55 fish tissue monitoring sites, and 291 lakes and wetlands.

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Appendix F

5-19

gram revision may be necessary when the controlling Federal or State statutory or regulatory authority is modified or supplemented. The State shall keep EPA fully informed of any proposed modifications to its basic statutory or regulatory authority, its forms, procedures, or priorities. Grounds for program revision include cases where a State's existing approved program includes authority to issue NPDES permits for activities on a Federal Indian reservation and an Indian Tribe has subsequently been approved for assumption of the NPDES program under 40 CFR part 123 extending to those lands.

(b) Revision of a State program shall be accomplished as follows:

(1) The State shall submit a modified program description, Attorney General's statement, Memorandum of Agreement, or such other documents as EPA determines to be necessary under the circumstances.

(2) Whenever EPA determines that the proposed program revision is substantial, EPA shall issue public notice and provide an opportunity to comment for a period of at least 30 days. The public notice shall be mailed to interested persons and shall be published in the FEDERAL REGISTER and in enough of the largest newspapers in the State to provide Statewide coverage. The public notice shall summarize the proposed revisions and provide for the opportunity to request a public hearing. Such a hearing will be held if there is significant public interest based on requests received.

(3) The Administrator shall approve or disapprove program revisions based on the requirements of this part and of the CWA.

(4) A program revision shall become effective upon the approval of the Administrator. Notice of approval of any substantial revision shall be published in the FEDERAL REGISTER. Notice of approval of non-substantial program revisions may be given by a letter from the Administrator to the State Governor or his designee.

(c) States with approved programs shall notify EPA whenever they propose to transfer all or part of any program from the approved State agency to any other State agency, and shall

identify any new division of responsibilities among the agencies involved. The new agency is not authorized to administer the program until approved by the Administrator under paragraph (b) of this section. Organizational charts required under § 123.22(b) shall be revised and resubmitted.

(d) Whenever the Administrator has reason to believe that circumstances have changed with respect to a State program, he may request, and the State shall provide, a supplemental Attorney General's statement, program description, or such other documents or information as are necessary.

(e) *State NPDES programs only.* All new programs must comply with these regulations immediately upon approval. Any approved State section 402 permit program which requires revision to conform to this part shall be so revised within one year of the date of promulgation of these regulations, unless a State must amend or enact a statute in order to make the required revision in which case such revision shall take place within 2 years, except that revision of State programs to implement the requirements of 40 CFR part 403 (pretreatment) shall be accomplished as provided in 40 CFR 403.10. In addition, approved States shall submit, within 6 months, copies of their permit forms for EPA review and approval. Approved States shall also assure that permit applicants, other than POTWs, submit, as part of their application, the information required under §§ 124.4(d) and 122.21 (g) or (h), as appropriate.

[48 FR 14178, Apr. 1, 1983, as amended at 49 FR 31842, Aug. 8, 1984; 50 FR 6941, Feb. 19, 1985; 53 FR 33007, Sept. 6, 1988; 58 FR 67983, Dec. 22, 1993]

§ 123.63 Criteria for withdrawal of State programs.

(a) The Administrator may withdraw program approval when a State program no longer complies with the requirements of this part, and the State fails to take corrective action. Such circumstances include the following:

(1) Where the State's legal authority no longer meets the requirements of this part, including:

Environmental Protection Agency

(1) Failure of the State to promulgate or enact new authorities when necessary; or

(ii) Action by a State legislature or court striking down or limiting State authorities.

(2) Where the operation of the State program fails to comply with the requirements of this part, including:

(i) Failure to exercise control over activities required to be regulated under this part, including failure to issue permits;

(ii) Repeated issuance of permits which do not conform to the requirements of this part; or

(iii) Failure to comply with the public participation requirements of this part.

(3) Where the State's enforcement program fails to comply with the requirements of this part, including:

(i) Failure to act on violations of permits or other program requirements;

(ii) Failure to seek adequate enforcement penalties or to collect administrative fines when imposed; or

(iii) Failure to inspect and monitor activities subject to regulation.

(4) Where the State program fails to comply with the terms of the Memorandum of Agreement required under § 123.24.

(5) Where the State fails to develop an adequate regulatory program for developing water quality-based effluent limits in NPDES permits.

[48 FR 14178, Apr. 1, 1983; 50 FR 6941, Feb. 19, 1985, as amended at 54 FR 23897, June 2, 1989]

§ 123.64 Procedures for withdrawal of State programs.

(a) A State with a program approved under this part may voluntarily transfer program responsibilities required by Federal law to EPA by taking the following actions, or in such other manner as may be agreed upon with the Administrator.

(1) The State shall give the Administrator 180 days notice of the proposed transfer and shall submit a plan for the orderly transfer of all relevant program information not in the possession of EPA (such as permits, permit files, compliance files, reports, permit applications) which are necessary for EPA to administer the program.

(2) Within 60 days of receiving the notice and transfer plan, the Administrator shall evaluate the State's transfer plan and shall identify any additional information needed by the Federal government for program administration and/or identify any other deficiencies in the plan.

(3) At least 30 days before the transfer is to occur the Administrator shall publish notice of the transfer in the FEDERAL REGISTER and in enough of the largest newspapers in the State to provide Statewide coverage, and shall mail notice to all permit holders, permit applicants, other regulated persons and other interested persons on appropriate EPA and State mailing lists.

(b) The following procedures apply when the Administrator orders the commencement of proceedings to determine whether to withdraw approval of a State program.

(1) *Order.* The Administrator may order the commencement of withdrawal proceedings on his or her own initiative or in response to a petition from an interested person alleging failure of the State to comply with the requirements of this part as set forth in § 123.63. The Administrator shall respond in writing to any petition to commence withdrawal proceedings. He may conduct an informal investigation of the allegations in the petition to determine whether cause exists to commence proceedings under this paragraph. The Administrator's order commencing proceedings under this paragraph shall fix a time and place for the commencement of the hearing and shall specify the allegations against the State which are to be considered at the hearing. Within 30 days the State shall admit or deny these allegations in a written answer. The party seeking withdrawal of the State's program shall have the burden of coming forward with the evidence in a hearing under this paragraph.

(2) *Definitions.* For purposes of this paragraph the definitions of "Act," "Administrative Law Judge," "Hearing Clerk," and "Presiding Officer" in 40 CFR 22.03 apply in addition to the following:

(1) *Party* means the petitioner, the State, the Agency, and any other per-

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

OFFICE OF
THE REGIONAL ADMINISTRATOR

March 12, 1997

To Parties Interested in Kansas House Bill No. 2368:

The Following Statement Addresses the Compatibility of House Bill No. 2368 with the Requirements of the 1987 Clean Water Act.

House Bill No. 2368 as currently proposed will place the Kansas water quality program in noncompliance with the Clean Water Act (CWA). When establishing limitations, standards, and other permit conditions under the National Pollutant Discharge Elimination System (NPDES), each permit must include conditions meeting state water quality standards and any other state and federal requirements. These requirements address achieving state water quality standards established under section 303 of the CWA and establishing effluent limits which will attain and maintain applicable narrative and numerical water quality criteria and will fully protect the designated uses of the receiving waters. Compliance with state-adopted water quality standards is essential to the protection of human health and the biological integrity of the surface waters of Kansas.

NPDES permits issued as required under House Bill 2368 will not protect state water quality and will not be consistent with the state regulations as adopted in the Kansas Administrative Regulations (KAR), July 14, 1994. Furthermore, permits issued by the Kansas Department of Health and Environment (KDHE) that fail to implement adopted standards will meet with firm objection by the U.S. Environmental Protection Agency (EPA) and will result in the issuance of those permits by EPA based on adopted Kansas water quality standards as written in the KAR.


If this Bill is adopted in its present form, EPA has available a range of options it may pursue including: 1) objection to state permits that are inconsistent with federal law and resulting issuance of those permits under federal authority; 2) development of an NPDES program corrective action plan for Kansas; 3) withholding federal funding to Kansas appropriated under Section 106 of the CWA which has supported KDHE's administration of the NPDES permit program and other water quality management activities; and 4) withdrawal of the federal NPDES permit program which the state is currently authorized to administer.

Similar to the development of water quality-based permit limits under the NPDES program, the development of total maximum daily loads (TMDL) must be based on applicable state water quality standards. According to federal regulation, "applicable water quality standards refer to those water quality standards established under section 303 of the CWA, including numeric criteria, narrative criteria, waterbody uses, and antidegradation requirements." In the absence of numeric criteria, EPA would expect the state to continue to develop TMDLs in order to protect the designated use of a waterbody. For waterbodies not meeting designated uses due to atrazine, the state would continue to develop TMDLs to protect those uses including the calculation of allowable loads of atrazine. Atrazine is a possible human carcinogen and is known to be toxic to aquatic life. Appropriate controls on the loading of atrazine to Kansas waters must be implemented in order to protect human health and aquatic life.

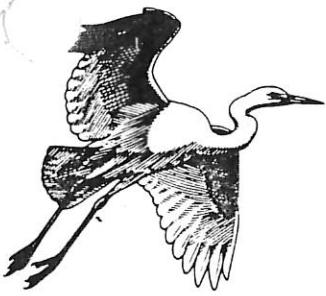
As a final consideration, the proposed Bill directs a commission to evaluate state water quality standards based on cost-effectiveness and economic impact. Under the CWA, economic and cost considerations may be addressed only when assigning designated uses and the Kansas water quality standards incorporate these procedures by reference. Where the protectiveness of the adopted state water quality criteria is compromised by considerations of cost, those criteria would not comply with the CWA. Water quality criteria employ the best available scientific information in determining what levels of pollution will not cause unacceptable impacts on human beings, aquatic organisms, and wildlife. Cost-based criteria would betray the public trust that human health, aquatic organisms and wildlife will be protected if those water quality criteria are attained. To the extent standards are adopted inconsistent with the CWA, EPA would disapprove those provisions.

EPA will continue to work in partnership with KDHE and other state agencies to ensure that water quality is restored and maintained in Kansas consistent with the Clean Water Act.

Sincerely,



Dennis Grams, P.E.
Regional Administrator



Kansas Audubon Council

March 25, 1997
Senate Energy and Natural Resources Committee
Testimony on Substitute HB 2368

Thank you very much for the opportunity to appear before you in opposition to Substitute HB 2368. My name is Cynthia Abbott, and I am here on behalf of the Kansas Audubon Council and the approximately 5000 Audubon members throughout the state of Kansas.

I'd like to start my testimony with a simple fact. The average adult human is 57% water by weight. A newborn may be as much as 75% water by weight. What is in the water we drink literally becomes a part of us. Water issues are critical to all life forms, including humans.

As I understand this legislation, it is arising in large part from the desire of a few municipalities and others within our state to avoid having to upgrade their facilities. Instead of rising to meet current national scientific standards based upon current scientific knowledge, the push is to move backwards to meet the less stringent requirements of a decade or more ago.

We know so much more about the environment than we did even 10 years ago. As in other segments of our scientific knowledge base, our understanding of the processes involved is expanding exponentially. Unfortunately as far as costs are concerned, along with increased knowledge comes an increased understanding of the sensitivity of living organisms, an increased awareness of the complexity of the systems involved and an increased knowledge of the disrupting effects that certain chemicals can have on these systems. Just in the last few years, for example, scientists have become aware of the ability of some synthetic chemicals to mimic hormones in humans as well as in other species. These endocrine disrupters, including atrazine, particularly affect the development of fetuses and newborns, with consequences ranging from learning disorders to reduced fertility. Knowledge like this isn't convenient. It also isn't easy to accept, but it's arrived at by the same scientific process that brings us the latest advances in many other areas.

The cost of upgrading facilities is a major part of the problem that this legislation is attempting to address. Upgrading is almost always expensive, yet it is considered part of life in a technological society. As our scientific knowledge expands, we upgrade computers, we upgrade automobiles, we upgrade farm equipment, we upgrade plant varieties, we upgrade medical procedures and technology...the list goes on and on. What this legislation says is that, while we can afford to pay money to upgrade all these other things to current standards, we don't want to pay the money necessary to upgrade

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affecting other portions of the home or, even worse, it will threaten the health of the home's occupants.

The members of the Kansas Audubon Council, as citizens of Kansas, believe that excellent water quality is an important goal to work for throughout our state. Hiding our head in the sand and lowering the standards is not going to improve the quality of the water. Therefore, we feel that this bill is counterproductive to the goal of clean water in Kansas. We urge you to vote in opposition to Substitute HB 2368.

Testimony of Gary Wright

Citizen

Wichita, Kansas

to

Kansas State Senate

Energy and Natural Resources Committee

March 25, 1997

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Testimony of
F.V. Robbins, P.E.
4352 E. 141st Street
Carbondale, KS 66414

Before the Kansas Senate
Energy and Natural Resources Committee
March 25, 1997

RE: H.B. 2368

Mr. Chairman, members of the Committee, thank you for the opportunity to testify in opposition to HB 2368. H.B. 2368 deals with surface water quality standards and surface water quality protection. I wish to express my strong opposition to this bill. This bill is special interest legislation of the worst possible sort. It would put the potential polluters in charge of water pollution control in Kansas.

I would like to give you a little information about my education and employment, as it affects my ability to comment on this subject. I am a graduate of Kansas State University in Agricultural Engineering. I am a registered professional engineer and a practicing consulting engineer specializing in environmental and agricultural engineering. I am also an independent farmer. I operate approximately 1000 acres in eastern Kansas. Before entering private consulting, I worked for the Kansas Department of Health and Environment (KDHE) for eight years, from 1985 to 1993, in the areas of surface and groundwater quality assessment and water pollution control.

The Clean Water Act (CWA) establishes the national goal of protecting and restoring the physical, chemical, and biological quality of all waters of the United States. The CWA requires states to adopt water quality standards which will guarantee the full support of beneficial uses such as: aquatic life, fishing, swimming, and drinking water supply. The CWA requires water quality standards be based solely on the best available scientific information. Water quality standards cannot be lowered or compromised based on economic impact considerations. The beneficial use designations for surface waters and the water quality standards for support of those uses are the foundation and backbone of the entire water quality protection program.

It seems the main driving force behind the bill is the contention that the current standards are so stringent as to impose unreasonable socio-economic burdens on the state. Even if one subscribes to this notion, there is still no justification for suspension of any current water quality standards. The current water quality standards already contain a provision which allows any affected regulated entity to request a variance of the standards in any case where it can be documented that compliance with the standards will impose unreasonable socio-economic hardship. Procedures for requesting and granting of a variance are set out in

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the regulations.

The proponents of this bill have expended a great deal of effort trying to demean the scientific data and methods utilized by KDHE scientists in developing the 1994 water quality standards. Certainly, the scientific research to support environmental regulations is not perfect and never as complete as we would like. However, the scientific research and documentation supporting the water quality criteria for ammonia is the most extensive data base supporting any aquatic life protection criterion. I have seen no information submitted by the proponents of this bill that justifies the adoption of an ammonia standard other than the current one.

Much has been made of the fact the surface water quality standard of 1 ppb for atrazine to protect aquatic life is lower than the 3 ppb standard for drinking water. There is nothing unusual or inconsistent in this. The agricultural industry will readily acknowledge that atrazine is a highly effective, long-lasting, broad spectrum herbicide that is much more toxic to plants than animals. Unfortunately, aquatic ecosystems depend on the photosynthesis of algae and other aquatic plants as their primary food supply. Atrazine has been found to be detrimental to algae and aquatic plants at extremely low concentrations. That is the basis of the aquatic life protection standard.

Kansas ranks last in the nation in compliance of our surface water with quality standards for beneficial uses such as, fishing, swimming and aquatic life support. Rather than work to improve water quality, the response of proponents of this bill is simply to lower the standards. What really is at issue here is not whether the current standards are appropriate to protect the surface waters of the state of Kansas, but rather the fact that they will force a small percentage of wastewater dischargers to expend considerable sums of money to upgrade treatment to comply and thereby improve water quality. As usual, money is the driving force. The Federal Clean Water Act requires surface water quality standards to be set at levels which will protect all "beneficial uses of the waters" without regard to economic impact.

If this law is passed and the water quality standards are suspended and subsequently lowered, it is quite likely the EPA would simply de-certify Kansas as being qualified to implement the Clean Water Act in Kansas. They could then revoke all Federal funds for pollution control, take over the water pollution control program and implement their own water quality standards, which would likely be more stringent than the current Kansas standards. EPA has not even approved portions of the current water quality standards (numeric criteria for priority toxic pollutants) because the state criteria are too lax in EPA's opinion.

Kansas employs a cadre of water quality specialists, including aquatic biologists, environmental scientists, and environmental toxicologists at KDHE. These people worked tirelessly for literally

thousands of hours over a seven year period developing the current water quality standards. The State has already spent millions of dollars to develop the standards. The Kansas Surface Water Quality Standards were developed through a long, detailed, rigorous scientific process in conformance with both State and Federal Law. They are based on the best available scientific information on pollutant toxicities and on indigenous Kansas aquatic organisms and aquatic habitats. The standards were developed using methods specified by the Environmental Protection Agency (EPA). The current standards were reviewed by outside experts and by the EPA. They were presented to the public for review and comment in several hearings prior to adoption. By Federal law, surface water quality standards must be reviewed every 3 years and revised to include any new scientific information. The review and revision of the 1994 standards is now in progress.

A rigorous scientific process is already in place to develop water quality standards. The process allows for review and comment by private sector experts in the field and by the general public. Why is a "special commission" needed and how could it improve the process? What special knowledge of water quality protection would persons with experience in business, industry, public finance, wastewater treatment, agriculture or law provide? How can it be assured the commission will be objective in their conclusions?

If the legislature feels it is important to allow more input from the public and the private sector in the development of water quality standards, the creation of an advisory commission composed of highly qualified water quality scientists and engineers to assist the KDHE would seem appropriate. However, this should be done in the context of the on-going standards review and revision process. There is no need for the suspension of any current standards. The advisory commission should deal only with the scientific justification of water quality standards; there should be no consideration of economic impacts or cost-benefit analysis.

Testimony Before the Senate Energy and Natural Resources Committee
Concerning House Bill 2368
Terry Shistar, Pesticides and Toxics Chair
Kansas Sierra Club
25 March 1997

Comments Concerning Atrazine

As the Pesticides and Toxics Chair of the Kansas Sierra Club, I would like to concentrate my comments on atrazine.

This bill would suspend the numerical criterion for aquatic life protection for chronic exposure to atrazine that was promulgated in 1994. That criterion was well supported by the available scientific evidence and was promulgated in accordance with the rather stringent public notice requirements of the Clean Water Act.

However, my concern is that the current domestic water supply criterion is not sufficiently protective of human health, and the aquatic life criterion therefore serves as a necessary protection for us as well. According to the process established by the Clean Water Act, the triennial review which should now be in progress should result in an updating of the standards by the end of 1997. In that case, KDHE would have a chance to update the standards according to the most recent toxicological research.

Atrazine causes cancer in animals. If numerical criteria for atrazine had been set under the 1987 standards, the domestic water supply criterion should have been set at the 1 in a million cancer risk level, which is 0.15 ug/l (microgram per liter). In 1994, KDHE dropped the specific protection against cancer-causing substances and set the domestic water supply criterion at the level considered cost-effective for public water suppliers to provide after treatment, the maximum contaminant level or MCL. For atrazine, the MCL is 20 times as high as the cancer-based number--3 ug/l. The aquatic life protection criterion has now become the target of agribusiness--only because the human health criterion was weakened--but even the aquatic life criterion is 10 times as high as the concentration allowed in Europe.

The most recent research on atrazine indicates that even the cancer-based limits may be too lenient. Cancer experiments use relatively high doses compared to the doses we receive from drinking water and food residues, though they are lower than the doses known to cause other effects. Cancer risk assessments are based on the assumption that the chance of getting cancer is proportional to the dose--that is, if the dose is lower, then the chance of getting cancer is proportionately lower.

This intuitive assumption is not necessarily true for chemicals that behave as hormones. This is because hormones turn on one effect at one dose, then turn it off at a higher dose, when a different effect may kick in. As a matter of fact, in experiments with alligator eggs, exposure to 0.1 ppm atrazine caused a 20% sex reversal, while a dose 1000 times as high had no effect. A week ago, I had a chance to talk with Lou Guillette, a pioneer in research on chemicals that mimic hormones. He has a paper on atrazine that will be published within a couple of weeks. He says it shows that atrazine exerts its estrogenic effects in mammals by increasing the production of estrogen and also by binding with the receptor for progesterone (a hormone that opposes estrogen).

In addition, recent studies at the University of Illinois have shown that exposure of ovarian tissues in hamsters to concentrations of atrazine as low as 1 part per billion caused chromosomal breakage within two days. Chromosomal breakages have been associated with some forms of cancer and birth defects. According to A. Lane Rayburn, one of the researchers, "People could say that what we are seeing are small breaks, perhaps even insignificant, but keep in mind that these studies involved exposure for just 48 hours. Over time, these breakages potentially could grow."

Given the direction that research on atrazine is headed, raising the limits for atrazine in our water is a bad idea.

Additional General Comments

I teach classes at the University of Kansas in Hazardous Materials Policy and Regulation and Environmental Risk Assessment, so the science policy issues raised by the bill are of special interest to me.

HB 2368 purports to be in favor of "sound science". It is, in actuality, an attack on sound science. As background to my comments on the bill, I first should explain the limitations in how science can inform public policy.

We will never have "all the evidence" about any particular scientific issue of relevance to public policy. One reason is that our understanding is constantly changing. We once thought that all toxicological endpoints had a threshold--that is, that they were safe at some doses and dangerous at others. Then came the discovery that cancer does not operate in this way, but that every minute dose of a carcinogen increases the probability that we will get cancer. Later came the understanding that even for "threshold effects", while

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populations on the average exhibit thresholds and individuals also do, it is not always possible to determine a non-zero dose that will protect every sensitive individual—or even a "normal" individual all the time.

Another reason we never have "all the evidence" is that we keep finding new questions we should ask. Good examples of this occurred in the early 1960s when we learned about teratogens from a disastrous unplanned experiment with thalidomide and just recently when we learned that many synthetic chemicals mimic hormones—which by their very nature are biologically active in minute doses.

Finally, we never have "all the evidence" because scientists refine their methodology and measurements. They repeat old experiments with the refined methods and get more precise results. A good example of this is new detection methodology that allows us to detect chemicals where we couldn't find them before.

Because we never have "all the evidence", sound public policy will contain provisions for revising previous judgments. Some laws provide for this better than others. The Clean Water Act, through the triennial review process, provides for the regular input of new scientific evidence. On the other hand, the nation's pesticide law, the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) provides a very cumbersome method for revising scientific judgments.

Because we never have "all the evidence", policy decisions requiring scientific defense are always based on incomplete evidence—hopefully, the most recent and most complete assemblage of that evidence. Because policy decisions are always based on incomplete evidence, it is a matter of policy to decide the preferred type of mistake to make. Most of our national environmental laws choose to err on the side of protecting health and the environment, on the theory that it is better to give more than the minimum degree of protection to people and the environment than to risk exposing them to harm through ignorance. I stress that this is a necessary part of science-based decision-making. Since it is necessary to deal with this uncertainty, laws establish general rules for doing so—for example, using safety factors to account for various sources of uncertainty. Using rules is an attempt to keep science in the forefront—as opposed to having every special interest lobby the legislature for its own special determination.

That, I contend, is what has happened in this case. Certain interests—municipalities and atrazine users and marketers—are seeking a special determination, not based on science because the legislature is not competent to act on science, but rather on whatever sources of influence that interest brings to the legislature. This method of setting water quality standards is bad public policy. There are hundreds of different criteria just in the water quality standards, with many more established under other statutes. One effect of passing this bill would be to open the door for every special interest to seek a suspension of standards, not just for water, but for air, waste, and everything else.

The proponents of HB 2368 would undoubtedly say that they are not asking the legislature to make decisions in place of science, but merely trying to hold off the decision until all the evidence can be considered. I have just explained why "all the evidence" can never be considered. Remember that even now the tobacco industry claims that there is not proof that smoking causes cancer. In the context of science-based policy, this bill would establish, at least temporarily, special rules for ammonia, atrazine, and chloride. For those particular substances, "err on the side of safety" is no longer the rule. "Err on the side of special interests" would be the rule.

Some unexpected support for the case I am making comes from the House testimony of the Kansas Corn Growers Association (KCGA). First they misrepresented the pond studies performed at KU, saying they support an aquatic life criterion for atrazine of 20 parts per billion (ppb). In fact, those studies found significant effects at the lowest concentration tested, which was 20 ppb. (The current criterion of 1 ppb is based on an EPA support document listing studies with significant effects at levels as low as 1 ppb. At least one additional more recent study (not considered by EPA) brings this down to 0.1 ppb.)

In the same testimony in which the KCGA misrepresented the results of KU researchers, they also requested an amendment that faculty of regents institutions not be allowed to serve on the commission that would evaluate the science behind the standards. This amendment was supported by other atrazine interest groups. It's pretty obvious how unimportant science is to the atrazine interests.

Similarly, some of the proponents of HB 2368 have linked it to cutting appropriations for KDHE's Office of Science and Support—another sign that science is unimportant to the bill's proponents. This bill suspends the atrazine criterion based on "evidence submitted to EPA for the 1994 triazine review." I also submitted comments on the triazine special review. Those comments contained evidence supporting a domestic water supply criterion of 0 and cancellation of the atrazine registration. If we are to base our regulations on "evidence submitted to EPA", then why not ban atrazine in the interim? I also submitted my evidence to the state of Kansas, which is more relevant to decision-making by the state of Kansas.

Questions and Answers About Atrazine

1. What is atrazine?

Atrazine is an herbicide in the family known as "chlorinated triazines". Triazines have a common mode of action and similar toxicology. It is used to control weeds in corn, sorghum, and some other crops. It acts by inhibiting photosynthesis. The crop plants are not affected because they contain an enzyme that breaks down atrazine.

2. What are the health effects of atrazine?

Long term low level exposure to atrazine in animals has been shown to cause cancer, increased mortality, reduced weight gain, increased irritability, anemia, enlargement of the heart, and irregular heartbeat.¹ Two-day exposure to low levels resulted in chromosome breakage in hamsters.² Epidemiological studies also link atrazine to birth defects.³

3. Atrazine supporters claim that if atrazine had caused any heart effects, then one would expect an increased incidence of heart attack deaths in a highly exposed population. Is this true?

No. The effect is an enlargement of the heart and arrhythmia, not heart attacks.⁴

4. What are the ecological effects of atrazine?

Because atrazine is an herbicide and interferes with photosynthesis, it affects all types of ecosystems. On dry land, it can eliminate sensitive plants where it is present because of drift or runoff. Earthworms exposed to atrazine experienced weight loss, reproductive failure, and death. However, atrazine breaks down relatively quickly when exposed to light and air.

Atrazine has more lasting impacts on aquatic ecosystems because it decomposes more slowly there. Some of the chemicals it decomposes to have similar effects to atrazine.⁵

Atrazine affects the species composition of algae, which has impacts on animals that eat the algae and animals that eat them. "Algae", like "grass" or "broad-leaved plant" refers to not one species, but many. To say that a chemical is harmless because it encourages growth of some algae while discouraging others is like saying it's fine to spray 2,4-D on a soybean field because even though the soybeans will die, other plants will grow even better. Some algae support fish life better than others. Some algae are even toxic.

Another effect that atrazine has on aquatic ecosystems is that it kills large aquatic plants. Large aquatic plants serve some important functions in the aquatic ecosystem. First, they serve as a surface on which other organisms--algae and aquatic invertebrates--can live. Those organisms are food for many fish. When we eliminate the large plants, those small organisms have fewer places to live, so the fish have less food. Another major function of those large plants is to provide refuges for small fish, where they can escape predators--sometimes their parents. In some of the experiments, atrazine resulted in major impacts on reproduction in fish because the young had no refuge from predators.⁶

Atrazine is also known to affect the endocrine system of animals. Exposure of alligator eggs to atrazine has resulted in sex reversal.⁷ Recent reports of frogs with gross malformation suggest that some environmental toxin is probably affecting frogs.

5. What levels of atrazine are harmful to humans?

There is no known safe level of exposure to atrazine. Any level can be expected to increase the chance of getting cancer or endocrine system disruption.

6. What levels of atrazine are harmful to ecosystems?

Concentrations as low as 0.1 ppb have been shown to have significant impacts on ecosystems.⁸

7. Atrazine supporters say that atrazine only causes one kind of tumor in one strain of rat. Is this true?

It is false. Atrazine has been shown to cause tumors in the mammary glands, testes, lymph system, and uterus in rats of two strains.⁹ Another test on another strain performed under contract to Ciba Geigy by IBT, which had submitted fraudulent test results to EPA, was discarded. It also showed that atrazine caused cancer.¹⁰ A test in mice commissioned by Ciba Geigy was inconclusive, but another test performed by an independent researcher found that atrazine caused cancer of the lymph system.¹¹

Some of the epidemiological studies were unable to focus on atrazine since farmers who used atrazine also use other herbicides. Studies of farming communities in this country have found a

positive association between non-Hodgkins lymphoma and atrazine use.¹² A study done in Kansas came to the conclusion that although triazine use (alone and with 2,4-D) was associated with increased incidence of non-Hodgkins lymphoma, only the association with 2,4-D use was statistically significant. (This study was designed to look at the effects of 2,4-D and related chemicals.)¹³

Other epidemiological studies showed that women who were exposed to triazine herbicides were 2.7 times as likely to develop ovarian cancer as those not exposed.¹⁴

Despite all of this evidence, EPA's cancer classification was based solely on one rat study and the equivocal mouse study because EPA's pesticide registration system relies almost completely on studies submitted by the manufacturer, and the second rat study submitted by Ciba Geigy was not completed at the time the cancer review was performed. EPA is now performing a Special Review of the triazines, and the additional studies are under review.

8. Atrazine supporters say EPA's Scientific Advisory Panel has twice rejected quantitative risk assessment for atrazine. Is this true?

Yes. Nevertheless, EPA decided that it was appropriate to perform a quantitative risk assessment.¹⁵

9. Atrazine supporters say that atrazine is not estrogenic. Is this true?

No. Both Ciba Geigy's own studies¹⁶ and those of researchers at Tulane University and the University of Florida demonstrate that atrazine is estrogenic.¹⁷ The findings are not, as atrazine supporters claim, limited to one strain of rat. EPA has never accepted Ciba Geigy's interpretation of the hormonal effects. In some animals, it binds with the estrogen receptor. In others, it binds with the progesterone receptor and also increases the production of estrogen.¹⁸

10. Atrazine supporters say that work on atrazine at the University of Kansas supports a 20 ppb aquatic life protection standard. Is this true?

No. Experiments at KU by DeNoyelles, Dewey, and Kettle showed significant ecological impacts at all concentrations tested, including 20 ppb, which was the lowest concentration they tested.¹⁹

11. Do environmentalists have any concerns about the impacts of the current atrazine criteria?

If the agricultural community cannot reduce their chemical dependency, they may end up using other chemicals that are equally hazardous in some respects. If they use more 2,4-D, more people will be exposed through drift to this carcinogen. If they use more sulfonylureas, it may result in serious ecological problems, since these chemicals cause problems at concentrations below which they can be detected. EPA and the state should ensure that any pesticide applied to fields stays on the field and does not move off in air, soil, or water.

¹ EPA, 1994. The Triazine Herbicides: Atrazine, Simazine and Cyanazine. Position Document 1, Initiation of Special Review.

² D.P. Biradar and A.L. Rayburn, 1995. Flow cytogenetic analysis of whole cell clastogenicity of herbicides found in groundwater. *Archives of Environmental Contamination and Toxicology* 28:13-17.

³ V.F. Garry et al, 1996. Pesticide appliers, biocides, and birth defects in rural Minnesota, *Environ Health Perspect* 104:394-399.

⁴ EPA, 1994. The Triazine Herbicides: Atrazine, Simazine and Cyanazine. Position Document 1, Initiation of Special Review.

⁵ EPA, 1994. The Triazine Herbicides: Atrazine, Simazine and Cyanazine. Position Document 1, Initiation of Special Review.

⁶ W. Dean Kettle, et al. 1987. Diet and reproductive success of bluegill recovered from experimental ponds treated with atrazine. *Bull. Environ. Contam. Toxicol.* 38: 47 - 52; G. Gluth, and W. Hanke. 1984. A comparison of physiologic changes in carp, *Cyprinus carpio*, induced by several pollutants at sublethal concentration. *Comp. Biochem. Physiol.* 79(1): 39 - 45; E. Fischer, 1989. Effects of atrazine and paraquat-containing herbicides on *Eisenia foetida* (Annelida, Oligochaeta). *Zool. Anz.* 223(5/6): 291-300; S. Dewey, 1986. Effects of the herbicide atrazine on aquatic insect community structure and emergence. *Ecology* 67(1): 148 - 162.

⁷ Lou Guillette, 1997. Speech the National Pesticide Forum, March 17, 1997, Washington, DC.

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