

Approved

Date

Ken Grotewiel
1/30/91

MINUTES OF THE HOUSE COMMITTEE ON ENERGY & NATURAL RESOURCES

The meeting was called to order by Representative Ken Grotewiel at
Chairperson

3:30 ~~am~~ p.m. on January 28, 1991 in room 526-S of the Capitol.

All members were present except:

Representative Webb, excused

Committee staff present:

Raney Gilliland, Principal Analyst, Legislative Research
Pat Mah, Legislative Research
Lenore Olson, Committee Secretary

Conferees appearing before the committee:

Theresa Hodges, Dept. of Health & Environment
Clark Duffy, Kansas Water Office
Gary Sherlaw, National Sanitation Foundation
Al Hermsen, A-L-H Trainers
Vic Studer, Executive Director, Kansas Rural Center
Mike Bradshaw, KSU Extension Specialist, Health and Safety, Co-chair of
Domestic Water Task Force
Larry Shannon, Topeka Water Department
Joyce Wolf, Kansas Audubon Council
Willie Martin, Sedgwick County Commission
Dirk Bloemendaal, Amway Corporation Attorney, Government Affairs Dept.
Pat Theisen, Nation Water Quality Association
Dr. Duane Nowlin, Spectrum Labs
Vincent Slusarz, General Counsel, Kinetico Incorporated
Wayne Morris, Pollenex, Associated Mills
Art Brookfield, Great Water Company, Incorporated
Gery Steffens, Mineral-Right, Inc.
Camie Schneider, Mineral-Right, Inc.
Fred Langmack, LiquiTech, Inc.
Gerald Belfor, Teledyne Water Pik
Athol (Al) Meder, Pure Water, Inc.
John Scheopner, Scheopner's Water Conditioning
Mike Vigola, Ecowater Systems
Harry Singer, Esterline Rainsoft
Joe Strecker, White's Soft Water Service

Chairperson Grotewiel called the meeting to order and announced that the hearings on HB 2035 and HB 2036 would proceed.

Theresa Hodges, Department of Health and Environment, testified in support of HB 2035, stating that this legislation is not intended to discourage or to regulate simple preliminary screening tests performed by the well owner, by local health departments, or by other interests. (Attachment 1)

Clark Duffy, Kansas Water Office, stated that HB 2035 and HB 2036 were introduced at the request of the Kansas Water Authority to implement two subsections of the Kansas Water Plan. (Attachment 2)

Mr. Duffy testified in support of HB 2036, stating that well owners who install drinking water treatment units are likely to run into a number of problems ranging from buying the wrong kind of equipment to sometimes unnecessarily high priced equipment. (Attachment 3)

Mr. Duffy then responded to questions from the Committee members.

CONTINUATION SHEET

MINUTES OF THE HOUSE COMMITTEE ON ENERGY & NATURAL RESOURCES,

room 526-S, Statehouse, at 3:30 ~~xxx~~ p.m. on January 28, 1991

Gary Sherlaw, National Sanitation Foundation, testified in support of HB 2036, and cautioned the State to be wary of accepting products which claim they are "tested to NSF Standards." To the consumer, a statement of this nature can be misinterpreted to mean NSF Certification; and, it can be even more misleading. (Attachment 4)

Al Hermsen, A-L-H Trainers, testified in support of HB 2036, stating that requiring any and all home treatment devices sold in the State to have been tested and certified by a laboratory such as the National Sanitation Foundation would end some of the worthless equipment now being sold. (Attachment 5)

Vic Studer, Kansas Rural Center, testified in support of HB 2035 and HB 2036, stating that the Rural Center does not promote the purchasing of water treatment devices; they recommend having water tested by a certified lab. The Rural Center believes that many water treatment units are being purchased out of fear. (Attachment 6)

Mike Bradshaw, KSU Extension Specialist, testified in support of HB 2036, stating that they have seen a number and variety of water treatment units sold to people who don't need them. He also stated that the Extension Service is willing to produce consumer information to be used with the water treatment units sold.

Larry Shannon, Topeka Water Department, testified in support of HB 2036, stating that there are many people around Kansas who support this bill.

Joyce Wolf, Kansas Audubon Council, testified in support of HB 2036, stating that the requirements of this bill should help consumers from becoming prey to unscrupulous salesmen using half-truths and scare tactics. (Attachment 7)

Willie Martin, Sedgwick County Commission, testified in support of HB 2036, stating that consumers must receive documentation accompanying water treatment units of company product claims substantiated by independent testing; and educational literature describing necessity, use and effectiveness to help consumers determine whether or not to invest in such units.

Dirk Bloemendaal, Amway Corporation, testified in opposition to HB 2036, stating that this bill, in its current form, would be expensive and difficult to administer for both the state and manufacturers. Requiring NSF listing would cause significant problems for manufacturers and consumers, and would be extremely costly and would freeze technology. He also stated that this bill will not remove bad actors from the marketplace. (Attachment 8)

Patrick Theisen, Water Quality Association, testified in opposition to HB 2036, stating that this bill would not accomplish the goal of protecting consumers from fraudulent sales tactics by individuals selling water treatment devices. He suggested alternative language to HB 2036, as shown on (Attachment 9)

Dr. Duane Nowlin, Spectrum Labs, testified in opposition to HB 2036, stating although he supports the intent of this bill, he opposes Section 3. (a) (1) which requires all drinking water treatment units to be tested and certified by the National Sanitation Foundation. (Attachment 10)

Vincent Slusarz, Kinetico, Inc., testified in opposition to HB 2036, stating that although they realize the need for public assurance when a product claim involves removal of a health-related contaminant, they oppose parts of Sections 3 and all of Section 4. (Attachment 11)

CONTINUATION SHEET

MINUTES OF THE HOUSE COMMITTEE ON ENERGY & NATURAL RESOURCES,

room 526-S, Statehouse, at 3:30 ~~xxx~~/p.m. on January 28, 1991

Wayne Morris, Pollenex, Associated Mills, testified in opposition to HB 2036, stating that this bill, as in current form, could completely put a company such as Pollenex out of the water treatment business. (Attachment 12)

Art Brookfield, Great Water Company, testified in opposition to HB 2036, stating that the most glaring problem with this bill is the inordinately high cost of the NSF Certification process required in Section 3 of the bill. (Attachment 13)

Camie Schneider, Mineral-Right, Inc., testified that they are in general agreement with HB 2035, with the exception of lines 21 through 24. They recommend the Committee consider allowing properly trained personnel to perform the field secondary standard tests. (Attachment 14)

Gary Steffens and Camie Schneider, Mineral-Right, testified that they agree with HB 2036 with the exception of line 43 on page 1 and lines 1 through 5 on page 2. (Attachment 15)

Fred Langmack, LiquiTach, Inc., testified that HB 2036 should be substantially revised, even though he agrees with the intent of the bill. He also agrees that some legislation is needed that will better protect consumers from unscrupulous and ignorant sellers of drinking water treatment devices. He stated that the bill should be rewritten in such a way that reputable businesses do not have to prove their innocence. (Attachment 16)

Gerald Belfor, Teledyne Water Pik, testified that they have concerns with HB 2036 and that there are inherent problems with the bill that equate to higher prices on limited products for the consumer, and heavy burdens on reputable manufacturers and retailers. (Attachment 17)

Al Meder, Pure Water, Inc., testified in opposition to HB 2036, stating that it is unacceptable and would have devastating consequences on his business in Kansas as they could not comply with it. He questioned the basic premise of the need for legislation and regulation of this type and asked that the Committee thoroughly explore the Kansas Consumer Protection Act before enacting additional legislation. (Attachment 18)

John Scheopner, Schoepner's Water Conditioning, testified that there are three items in HB 2036 which need to be addressed or they may cause him to close his doors, as shown in (Attachment 19)

Mike Vigola, Ecowater Systems, testified in opposition to HB 2036, stating that they are strongly opposed to any legislation that grants a single laboratory a monopoly on testing drinking water treatment units. He stated that they have serious reservations about developing informational brochures unique to the State of Kansas. He also stated that Section 4 requires certification of customized drinking water treatment units that would be extremely difficult and costly to comply with. (Attachment 20)

Harry Singer, Kansas Water Quality Association and Esterline Rainsoft, testified that they basically support the intent of HB 2036, but businesses should not be included. (Attachment 21)

Joe Strecker, White's Softer Water Service, testified in opposition to HB 2036, stating that if it is left as currently written, it will put him out of business, because none of their equipment is certified or tested by the National Sanitation Foundation. (Attachment 22)

CONTINUATION SHEET

MINUTES OF THE HOUSE COMMITTEE ON ENERGY & NATURAL RESOURCES,
room 526-S, Statehouse, at 3:30 a.m./~~p.m.~~ on January 28, 1991.

Written testimony was provided by:

Paul S. Giovagnoli, President, Durastill (Attachment 23)

Donna Cirolia, Culligan (Attachment 24)

Lee Langmack, LiquiTech, Inc. (Attachment 25)

The Chair concluded the hearings on HB 2035 and HB 2036.

The meeting adjourned.



State of Kansas

Joan Finney, Governor

Department of Health and Environment
Kansas Health and Environmental Laboratory

Forbes Field, Bldg. 740, Topeka, KS 66620-0002

Acting
Stanley C. Grant, Ph.D., Secretary

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Testimony presented to
House Energy and Natural Resources Committee

by

The Kansas Department of Health and Environment

House Bill 2035

Adequate protection for more than 125,000 private drinking water supplies in Kansas is an important public health issue. We have been pleased to work with the Kansas Water Office and with many allied interests in the development of a protection strategy which includes education, assessment, laboratory testing, and remediation components.

The most appropriate way to assure the accuracy of laboratory tests performed on all Kansas water supplies is through certification of analytical laboratories. The certification process evaluates laboratories for compliance with recognized standard test procedures, instrumentation, facilities, trained analysts, and quality control systems. This process also monitors the performance of certified laboratories through required analysis of unknown proficiency test samples. During the past fifteen years, an established laboratory certification program at the Department of Health and Environment has served to maintain high data quality for laboratory tests in order to monitor all public drinking waters in Kansas for chemical and biological safety. This bill would extend these laboratory certification requirements to include those analytical tests performed on private water supplies in Kansas. Because these test results are routinely used for important decisions on the safety of private drinking waters, we support the intent of this legislation. It should be clearly understood, however, that this legislation is not intended to discourage or to regulate simple preliminary screening tests performed by the well owner, by local health departments, or by other interests. Frequent use of qualitative screening tests can help to indicate the general suitability of private water supplies and can help to focus the need for more definite quantitative tests performed by a certified laboratory.

Testimony presented by: Theresa L. Hodges
Laboratory Improvement Program Office
Kansas Health and Environmental Laboratory
January 28, 1991

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Attachment 1

House Bill 2035



Certification of Laboratories Testing Private Well Water Supplies

Kansas Water Office

January 1991

BACKGROUND

House Bill 2036 was introduced at the request of the Kansas Water Authority to implement, in part the Protection of Private Well Water Supplies of the FY 1992 *Kansas Water Plan*.

The protection of private well water supplies is the responsibility of the well owner. However, state government has recognized its broader responsibility for protection of all waters of the state from pollution. Chapter 186 Section 1(b), 1989 Session Laws of Kansas, states that "the state's responsibility to promote health and welfare requires a comprehensive approach to protect the environment by preventing and remedying the pollution of the state's natural resources...." A coherent strategy to ensure the suitability of these water supplies would serve both public health and agricultural development interests of the state.

The Kansas Department of Health and Environment and the U.S. Geological Survey have cooperatively monitored groundwater quality since 1976. Between 1976 and 1981, 766 wells were tested. It was found that 40 percent of the wells exceeded the recommended limit for total dissolved solids and 14 percent exceeded the drinking water standards for nitrates. Monitoring from 1986 and 1987 showed similar results with 45 percent of the wells showing excessive dissolved solids and 11 percent exceeding nitrate standards.

A survey of farmstead wells in Kansas was conducted jointly by the Kansas Department of Health and Environment and Kansas State University from 1987 to 1988. Twenty-eight percent of the wells tested yielded nitrate levels greater than the maximum contaminant level of 10 milligrams per liter for public water supplies. Fourteen percent had nitrate levels above 20 milligrams per liter. Eight

percent of the wells contained detectable amounts of pesticides.

A three-phase program for protection of farmstead well water supplies was initiated by the Kansas Department of Health and Environment in 1987 in cooperation with Kansas State University. In the first phase a statewide random survey of the water quality of these wells was conducted. In the second phase studies were conducted to identify factors affecting well water quality in Kansas. The third phase covers training of county extension agents and printing of educational materials on such topics as "Understanding Well Water Test Reports," "Effectiveness of Household Water Treatment," "Locating a New Farmstead Well" and "Managing the Farmstead to Minimize Contamination of Groundwater and Wells." The educational materials have already been developed; however, due to a lack of resources and the absence of a well coordinated overall policy the program is not fully operational.

CONCEPT

Based on the *Kansas Water Plan* a program to assist well owners in the protection of private well water supplies should include the following:

Program Coordination. At present private well owners depend upon their own resources to protect their well water supplies. Efforts have been made by the Kansas Department of Health and Environment, Kansas Farm Bureau and the Kansas State University Extension Service to conduct some preliminary testing of private wells and to educate well owners, but there is no single entity to coordinate these efforts.

Assessment of Vulnerability. A critical step in any strategy to protect private well water supplies should be to assess their vulnerability to

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Attachment 2

pollution resulting from faulty construction, location or usage.

Periodic Screening and Testing of Well Waters for Suitability. All well owners, and owners of vulnerable wells in particular, should be encouraged to periodically test their water supplies. These tests need not be comprehensive detailed analyses of all possible contaminants.

Reporting and Interpretation. For screening tests and detailed laboratory analysis to be useful, it is essential that test results be reported in a standard format and interpreted in terms understood by the well owner. Laboratories testing public water supplies are required to be certified as per K.S.A. 65-171k. This new statute will require certification of laboratories testing private water supplies to ensure reporting of the test results in a standard format.

Corrective Action. If on the basis of a vulnerability assessment or preliminary screenings and detailed laboratory analyses it is established that there are deficiencies in the construction, location or operation of the well, or the water is of unacceptable quality, corrective actions should be initiated. These steps could include modification, treatment, or relocation of the well depending upon the nature of the quality problem and available alternatives.

Public Education. All the steps taken to test well water supplies or to remediate wells with existing problems may prove fruitless if well owners are not informed about how to protect their wells from sources of pollution or to properly locate and operate their wells.

This sub-section approved by the Kansas Water Authority in 1990 makes the following recommendations for protection of private well water supplies:

1. Assign the overall responsibility for coordination and administration of the program of protection of private well water supplies to the Kansas Department of Health and Environment.
2. Educate the well owners to make their own assessments of the vulnerability of their wells to pollution.
3. Encourage the local health departments to purchase screening materials and test equipment through their local environmental grants.

4. Require certification of all laboratories in Kansas performing analytical tests. (This certification will not be required for preliminary screening.)
5. Train the local health departments and county extension agents to identify problems in the location, construction and operation of a well and provide technical assistance to the well owners.
6. The Kansas Department of Health and Environment should contract with the Cooperative Extension Service to conduct workshops on protection of private well water supplies.

SUMMARY OF THE HOUSE BILL 2035

This bill requires certification of laboratories which choose to perform analytical tests for private water suppliers in Kansas. All laboratories which perform testing for public water supplies are already certified by the state.

Analytical tests include those laboratory analyses which determine exact levels of impurities in the water. The bill does not require any certification for the laboratories which do simple preliminary screenings to perform some basic tests to simply determine the presence or absence of certain impurities.

The violation of this act may result in revocation of certification or a civil penalty not to exceed \$500.

ADDITIONAL INFORMATION

Further information on this subject may be obtained from: Director, Kansas Water Office, 109 SW 9th Street, Suite 300, Topeka, KS 66612-1249 (913) 296-3185.

H.B. 2036



Drinking Water Treatment Units

Kansas Water Office

January 1991

BACKGROUND

This bill is a companion to the House Bill 2035 for complete strategy on the protection of private water supplies. It was introduced at the request of the Kansas Water Authority to implement the Home Water Treatment Devices Sub-section of the FY 1992 *Kansas Water Plan*.

In many cases after detailed analytical tests the well owner may find that the water supply although good for other purposes, is not absolutely fit for providing drinking water supply to the family. In such cases the well owner may decide to install a drinking water treatment unit to the home water supply portion.

But it is here that the well owner is likely to run into a number of problems ranging from buying the wrong kind of equipment specifically needed to correct a water problem to sometimes unnecessarily exaggerated high priced equipment, where a much cheaper alternative could do the same job. This problem has become more acute due to general health concerns among both users of private and public water supplies.

CONCEPT

In order to assist the consumer in making an informed decision, the steps recommended in the *Kansas Water Plan* are as follows:

1. Consumer Education

The strategy recommended for Kansas is threefold. First, the Extension Service will hold workshops for educating the public on water

quality, including the necessity, use and effectiveness of drinking water treatment units. Second, the Extension Service will publish a consumer information handbook, in easily understandable language. This handbook will cover all aspects of drinking water treatment units, i.e., when to consider buying such devices, which units are suitable for different situations and how to properly operate and maintain them. In addition, the handbook would educate the water supply owners on their rights and responsibilities under the Consumer Protection Act and how to resolve any complaints regarding these units. This handbook would be distributed to the public and to the sellers of drinking water treatment units for the inclusion in their product information package.

2. Product Certification

A few sales persons try to sell their drinking water treatment units on the basis of unsupported or exaggerated claims. The water supply owner has no way to judge whether these functions will be actually performed and for how long, because currently there is no requirement that claims be verified by qualified independent testing agencies.

In order to check this problem, many states including Iowa, California, Massachusetts and Wisconsin have enacted legislation which requires that the drinking water treatment units be certified for their performance claims by third party independent laboratories, such as the National Sanitation Foundation. The strategy recommended for Kansas is also to enact

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legislation which will require that the state adopt the standards and certification of the National Sanitation Foundation and to require that product benefit claims and product performance claims relating to drinking water treatment units intended for sale in Kansas are certified by the National Sanitation Foundation. A certificate from the National Sanitation Foundation to this effect and the manufacturer's performance data sheet will be required to be included in the buyer information package.

This legislation will ensure that owners are informed regarding expected performance of the product. This will also help the Attorney General to prosecute the sellers who make unsubstantiated claims about their products.

3. Dealer Confidence

At present there are more than 50 established businesses in Kansas dealing in water softening purification and treatment devices. In addition, there are numerous sales representatives trying to sell their products through telemarketing and door to door sales.

There is no mechanism whereby water supply owners can be assured that they are dealing with reputable people who are knowledgeable about water quality and drinking water treatment units and engage in lawful sales practices.

The strategy recommended for Kansas is to rely on public information through the services of the Cooperative Extension Service at Kansas State University and to simplify the use of the Consumer Protection Act when false or deceptive claims have been made by the dealer. The Extension Service, having their representatives in all the 105 counties of the state, would be asked to educate the public on the Consumer Protection Act and how to differentiate between reputable businesses and unreliable high pressure sales persons, such as asking for references, checking with the Better Business Bureau or the Attorney General's Office regarding any pending complaints against them.

SUMMARY OF HOUSE BILL 2036

The purpose of House Bill 2036 is to assist consumers in making an informed decision regarding the purchase of a home drinking water treatment unit. The key provisions of this bill are as described.

Section 2 defines a drinking water treatment unit as a household or business unit for which a claim is made that will improve the quality of water by changing or reducing one or more contaminants. Those units which only make aesthetic claims regarding taste, color or odor would not be effected by this act.

Section 3 makes it unlawful to sell a drinking water unit unless the consumer has first signed a statement that he has received a product information packet which includes: 1) the consumer information handbook provided for by Section 6; 2) certification of product benefit claims and product performance claims by the National Sanitation Foundation; and 3) the manufacturer's performance data sheet which is described by Section 5. Certification by the National Sanitation Foundation will provide an independent third party test to assure the consumer that the unit will perform as claimed by the manufacturer.

Section 4 would not require customized drinking water treatment units to be recertified unless performance claims were made for the system that were not covered by the individual units.

Section 7 would make it a violation of the Consumer Protection Act for a seller to commit any unlawful act described in Section 3. Although drinking water treatment units are currently covered under the provisions of the Consumer Protection Act. This section would assist in the enforcement of that act by simplifying the question of unsubstantiated performance claims for drinking water treatment units.

Section 8 would delay the effective date of this act until January 1, 1992. This would allow manufacturer's sufficient time to have their units certified by the National Sanitation Foundation.

ADDITIONAL INFORMATION

Further information on this subject may be obtained from: Director, Kansas Water Office, 109 SW 9th Street, Suite 300, Topeka, KS 66612-1249. (913) 296-3185.

National Sanitation Foundation



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TESTIMONY OF
NSF INTERNATIONAL

Before the:

**House Energy and Natural Resources Committee
Topeka, Kansas
January 28, 1991**

Presented by:

**Gary W. Sherlaw
Assistant to the President**

*E & NR
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Attachment 4*

My name is Gary Sherlaw and I am employed by NSF International in the capacity of Assistant to the President. I am pleased to provide these comments to the Kansas House Energy and Natural Resources Committee, in support of proposed House Bill (HB) 2036, the "Kansas Drinking Water Quality and Treatment Act." They are made on behalf of NSF International (NSF), an independent, private, not-for-profit organization with headquarters in Ann Arbor, Michigan. More comprehensive written comments have been submitted to the Chairman.

NSF is known and respected worldwide as a provider of classical third-party services related to public health and environmental sciences. As a classical third-party, NSF is physically and operationally independent of clients served. Further, well-qualified professionals are retained on staff to support and provide services, and to oversee the use of formally registered Marks for certifying equipment. My colleagues and I take great pride in the total objectivity which is NSF's hallmark around the world.

NSF's voluntary consensus standards are developed with balanced participation from all parties at interest, and our procedures are accepted by the American National Standards Institute (ANSI). (ANSI is recognized internationally as coordinator of the US private sector-administered voluntary standards system. It is also the official US representative to the major non-treaty international standards bodies — the International Organization for Standardization (ISO), and the International Electrotechnical Commission (IEC)). Four of the five NSF drinking water treatment unit standards are accepted by ANSI and are, therefore, ANSI/NSF Standards. Further, NSF has made application for accreditation of its Certification Programs under ANSI Z34.1 "American National Standards for Accreditation of Third-Party Certification Programs." For over 46 years, product certifications by NSF have been referenced in official codes, regulations and policies in most US states, and used by manufacturers in thirty-six other countries around the world.

It is our understanding that the State is seeking to develop a program providing assurance to regulators and consumers that the drinking water treatment units being offered for sale in the

State have been initially tested, evaluated, and are continually reviewed, inspected, and periodically retested under a recognized certification program. We do not believe the State is seeking only performance testing for drinking water treatment units.

There are many laboratories throughout the United States which are capable of performing chemical analyses of drinking water treatment unit effluents; but, their evaluation ends at that point. There is no technical review of the design and construction of product, no toxicological review and acceptance of materials used to produce it, and likely no structural testing and no review of literature by these laboratories. Contract laboratories provide one time testing and have no mechanism in place to follow up on subsequent production by the manufacturer. Further, there is generally no registered mark of compliance owned and used by the contract laboratory. NSF urges that the State of Kansas not confuse the issue of product certification of drinking water treatment units with product testing of the units.

The Kansas Water Office carefully designed the wording of this regulation to read, "product certification," and not "product testing." NSF Certification gives both the regulatory sector and the public the assurance that a drinking water treatment unit has been tested, evaluated, reevaluated, and certified by an independent third-party organization, and that it is in full compliance with the relevant standard. Ongoing manufacturing inspections, review and pre-authorization of any design or material change to a certified product, and periodic retesting assure continued compliance with the standard. The Mark will provide a credible means for manufacturers to demonstrate compliance, and will assure all parties at interest that minimum public health requirements in the applicable standards are met.

Standards developed and maintained by NSF can be used by others as a basis for product evaluation and acceptance, but this practice is not equivalent to product certification by NSF or by another classical third-party provider.

We caution the State to be wary of accepting products which claim they are "tested to NSF Standards." To the consumer, a statement of this nature can be misinterpreted to mean NSF

Certification; and, it can be even more misleading. We have recently received copies of a manufacturer's "performance data sheet" claiming "tested according to NSF Standard #53;" however, upon review, the test conditions were quite different from those required in the Standard. We take strong exception to this and other practices which mislead the public.

We applaud the State of Kansas for the position it has taken in proposing product certification for drinking water treatment units. We appreciate the opportunity to comment on this Bill, and look forward to working further with the State on developing regulations consistent with the statutory intent of HB 2036.

A-L-H TRAINERS
CROSS-CONNECTION CONTROL
SPECIALISTS

5215 SW 23rd Street
Topeka, Kansas 66614-1602
913/272 4959

My name is Al Hermsen. I am partner of a two person company that specializes primarily in training, inspections, plans examinations and consultations in the field of Cross-Connection Control.

Cross-Connections are a path through which something could enter a potable or drinking water system and degrade its quality and make it either undesirable or unfit for human or animal consumption. This might be a pathogenic organism, a toxic compound or a product causing an unwanted taste, odor or color.

I am not an engineer or a chemist and do not claim expertise in either of those fields. However, I have been in the water field for many years and am qualified and licensed as a water treatment plant operator, a wastewater treatment plant operator, am certified as a plumbing inspector and in cross-connection control. With this background, I feel I can claim a large amount of experience as a technician in the water field.

Home water treatment devices are often misrepresented by sometimes unscrupulous salespersons. I feel that others are simply not knowledgeable in the product they are presenting and will tell a potential customer what he or she wants to hear. Either will mislead that consumer.

From personal experience after answering an advertisement, I was witness to, what I feel, was an uninformed sales person. A lady took a water sample from our kitchen sink faucet, dropped a few drops of something into the sample and then claimed the Topeka city water contained all kinds of pathogens and toxic chemicals. From my water experience, I know that the simple chemical reaction she performed could not have shown any more than chlorine content, if that.

Yet this person, after telling my wife and I how bad our water was, proceeded to try to sell us on some very expensive equipment, designed to "purify" our water and end our exposure to all these dangerous things that she said was in our public water system.

Indeed, I do feel that there are times that additional treatment may be desirable in some public water. However, the water industry is almost as closely monitored as is the pharmaceutical industry. Tests are required to assure the public that the water will not cause harm to someone drinking it. If water becomes a hazard if ingested or from body contact, the water operator is required, by law, to inform those who might use it to refrain, or

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sometimes, to boil before drinking. It is seldom that persons are harmed from the water that is pumped into the mains from a water treatment plant.

Water quality is, however, another matter. A water can be safe to drink, but have undesirable hardness, color, taste or odor. In those cases, home treatment could be justified. An ion exchange unit will lower hardness and institute a saving in laundry soap used. Car washes also want softened water to reduce hard water spotting. Water containing hydrogen sulfide, H_2S , can cause it to have an undesirable taste and smell. At times of the year, some surface water sources will have color that is impractical or impossible to remove at the treatment plant.

One of the biggest selling points that some salespersons use is that their units will remove "chlorine and other bad chemicals like fluoride" that are added in treatment. Chlorine is added to render harmless any pathogens that may have escaped treatment and filtration. It also gives a degree of protection if an infectious bacteria enters the water through a cross-connection. Fluoride, of course, has been approved by dentists to harden the enamel of the teeth of our children and make future generations less susceptible to tooth decay. The removal of those chemicals, in my opinion, lowers the quality of the water.

At least one manufacturer offers for sale a home treatment device that it claims can render a raw water supply to a potable condition. The equipment requires additions of chemicals and coagulant to treat the raw water to remove suspended solids and chlorine disinfection. If this unit was to be used to treat a public water supply, state regulations would require the operator to prove his capability and be licensed. Yet, this unit may be legally sold to uninformed customers in Kansas at the present time.

Since the State was once covered with seawater, many Kansas natural waters contain large amounts of sodium. Some human conditions make it mandatory to avoid consuming sodium. In those cases, a home treatment device might be more desirable than purchasing bottled water, which also is often suspect. In those cases, a reverse osmosis or distillation machine to remove the salt would be the obvious choice. Persons that must avoid sodium should never drink ion exchange softened water, since the hardness ions are traded for sodium ions, a fact seldom expressed by those selling this equipment.

Requiring any and all home treatment devices sold in the State to have been tested and certified by a laboratory such as the National Sanitation Foundation would end some of the worthless equipment now being sold. Since many of these devices are quite complex and require continued service for continued correct operation, detailed instructions are necessary, another important aspect of this proposed legislation.

In my experience, most of the home water treatment devices are merely a carbon filtration unit. The only "contaminant" removed by this type of machine is usually chlorine which, as I stated before, is a desirable chemical to render harmless pathogenic bacteria that might have entered the water through an unprotected cross-connection. Without the protection afforded by the chlorine, colonies of bacteria can flourish. Unless there is regular replacement of the carbon, waters so treated often are of a lesser quality than the raw water before being "filtered".

For these reasons, I feel this legislation should be adopted and made law. My only regret is that it will be nearly a year before becoming effective after passage.

THE KANSAS RURAL CENTER, INC.

304 Pratt Street

WHITING, KANSAS 66552

Phone: (913) 873-3431

Testimony Before the House Energy and Natural Resource Committee
HB2035 and HB2036
January 28, 1991

Chairman Grotewiel and Members of the Committee:

I am Vic Studer, Executive Director of the Kansas Rural Center, a non-profit corporation that provides research, writing and advocacy work sustaining rural communities and family farms. Currently, our project areas involve water policy, sustainable farming, rural leadership and community development. As a part of the water project, we provide community education workshops and research to meet rural community water demands.

Most of our workshops take place in communities of less than ten thousand people where the drinking water is from a public water supply or in rural areas where many individuals use private domestic wells as their drinking water supply source.

Private wells are the most common source of water for farms and residents of small towns that do not have a city water supply. Approximately 11% of the state's population uses water from self-supply systems. The quality of drinking water from private supplies is not controlled by state or federal regulation. These regulations apply solely to public water supplies and serve only as guidelines to evaluate the quality of private drinking water. In the case of a private supply then, the responsibility for providing good quality drinking water lies entirely with those who use it. Generally, Kansas has an abundant supply of good, safe drinking water, but increasingly there are cases where treatment of one sort or another is necessary.

While our workshops inform and educate the public as to what the condition of a water supply is, we find that the public often wants simple solutions. Many times I have been asked the question, "What type of water treatment system should I buy?"

There is not an easy answer. The Rural Center does not promote the purchasing of water treatment devices. First of all, we recommend having the water tested by a certified lab. Since KDHE no longer tests private water supplies, they do maintain a list of certified labs and individuals can request the list from them. Secondly, once an individual finds out just what is in their water they can consider a remedy - if necessary. This may mean physically moving the source of water, removing the contamination source, or improving the conditions of the well. Often times an individual will simply purchase a water treatment system in the hopes that they have solved the problem.

SNAKE OIL: With regard to water treatment systems, there is a lot of snake oil being peddled. Most of it is bought out of fear of the unknown. As Will Rodgers said, "There is a sucker born every minute," and they're going to buy

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Attachment 6

something! In many cases the treatment system that is bought is expensive and unnecessary. Common sense often goes out the window when the shadow of fear comes in. If health claims are being made, and they often are, there is justification for consumer protection. Water purification is a fast growing industry and reputable dealers should be anxious to serve the public, protect consumers and assist in policing themselves for undesirable dealers.

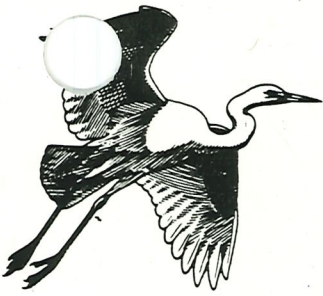
CONSUMER EDUCATION: Recently one of our board members from Holton considered purchasing a reverse osmosis water treatment system. He had been told by a high pressure salesperson that this \$1000 device would remove all pesticides, nitrates, and microorganisms. RO will do all that, but one doesn't need this sophisticated treatment in Holton, Kansas where the main water supply is a public well and it is usually within the acceptable standards. Consumer education would speak to this and other such issues.

QUESTIONABLE REMEDIES: Small charcoal filter devices are often purchased for use on water taps to remove chlorine and its odor. If these are not changed very frequently and maintained properly the individual ends up drinking water that is full of bacteria and worse contaminants than they were ever receiving straight from the tap... the happy consumer thinks they have just purchased the answer to all their drinking water woes. (Some states have outlawed such devices.) To rid drinking water of the chlorine odor simply draw the water into a bottle and leave it set without a lid for a few hours, the chlorine evaporates. Once again, consumer education and a manufacturer's performance data sheet would greatly benefit the public.

TESTING PROCEDURES: Another serious problem in rural areas is the testing procedure itself. Often the salesperson offers to test a sample of the water for the consumer. Since our water is not tested on a regular basis and does not need to meet standards we might not know what to expect. While trace elements of contaminants are often detected, most generally the salesperson finds harmless minerals and may use this evidence to alarm the consumer as to the extent of pollution and the health threat that is posed. Certified laboratory testing would alleviate this practice.

The Rural Center does question the need for certification to be done solely by the National Sanitation Foundation. We would suggest that the bill include other labs that meet the National Sanitation Foundation standards.

HB2035 and HB2036 will remedy many of the concerns I have discussed. Public education, performance data information and certified laboratory testing will assist Kansans in making educated decisions to protect themselves and their water supply. I urge you to pass these two bills. Thank you for your time.



Kansas Audubon Council

January 28, 1991
House Energy and Natural Resources Committee

HB 2036: DRINKING-WATER TREATMENT UNITS

My name is Joyce Wolf and I am here on behalf of the 5000 Kansas members of the National Audubon Society who support the wise use and protection of our natural resources.

The Kansas Audubon Council ordinarily does not testify on consumer protection matters, but we believe there is a serious need for quality assurance standards for drinking-water treatment devices. Probably each person in this room has been contacted by telephone salesmen from the water-treatment device industry. Because there has been a great deal of publicity concerning water pollution problems, many persons are fearful of drinking "unhealthy water."

The Council believes that if HB 2036 is enacted, it should assist consumers in making more informed decisions as to what the water treatment devices are designed to do and how effectively and efficiently they accomplish that goal. The requirements to certify the units as well as to provide information to consumers on the manufacturer's performance data sheet, the owner's manual and to provide other information through the cooperative extension service should help prevent consumers from becoming prey to unscrupulous salesmen using half-truths and scare tactics. Reputable companies selling legitimate products should not be intimidated by the intent of this bill.

The Kansas Audubon Council supports passage of HB 2036 and urges the committee to vote favorably on it.

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Attachment 17*



Amway Corporation, 7575 Fulton Street, East, Ada, Michigan 49355-7410
Legal Division

January 25, 1991

Chairman Ken Grotewiel
Energy and Natural Resources Committee
Statehouse
Topeka, KS 66612

Subject: House Bill 2036 / Water Treatment Units

Dear Chairman Grotewiel:

I understand House Bill 2036, a bill dealing with water treatment units, will be heard in the Energy and Natural Resources Committee on Monday, January 28. On behalf of nearly 20,000 independent Amway distributors, I wish to express Amway's opposition to the bill in its current form. As presently drafted, the bill would create a costly and bureaucratic program for water treatment units, the primary effect of which will be to actually hurt consumers by reducing competition and significantly increasing consumer prices without adding significant consumer protection.

By way of background, Amway markets several state-of-the-art water treatment systems which remove a wide variety of undesirable substances from potable drinking water, including lead. Amway's water treatment systems are listed with the National Sanitation Foundation (NSF) for their contaminant removal capabilities as well as for the removal of taste, color and odor problems associated with some drinking water supplies. There is no question that Amway's products are some of the finest in the industry.

House Bill 2036, in its current form, would be expensive and difficult to administer for both the state and manufacturers. I. First, the bill requires that each model of water treatment unit be tested and listed by NSF. As you may know, NSF is a private testing entity where manufacturers of sanitation products may have their products tested under certain limited standards. An NSF seal for sanitation products is much like receiving a UL Seal from Underwriters Laboratories for electrical products. In both cases, listing with either entity is voluntary and is done primarily for marketing purposes. Both of Amway's water treatment systems are NSF listed.

However, requiring NSF listing would cause significant problems for manufacturers and consumers. First, such a proposal would be extremely costly. Many smaller manufacturers, currently without NSF listing, would be forced to repeat all testing already performed at tremendous cost and effort with significant time delays and no consumer benefit. These costs would significantly raise consumer prices for such products. Manufacturers already spend large sums of money to test their products following accepted protocol before bringing them to market, ensuring that their product

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benefit and product performance claims are correct and accurate. These claims are already subject to all the terms and conditions of the Kansas Consumer Protection Act.

NSF listing is extremely expensive, and a minimum cost in obtaining such a listing from NSF under a single standard can easily exceed \$20,000. This cost goes up with the testing of different models and the addition of more contaminants under the standard. It is not uncommon for a manufacturer to spend \$40,000-\$50,000 to obtain an initial listing, and face substantial ongoing renewal fees.

Second, requiring NSF listing would freeze technology. Manufacturers would be given a clear disincentive to expand bona fide claims and be given every incentive to drop valid claims to hold down costs. The general cost to test for a single contaminant presently ranges from \$3,000-\$5,000; required third-party testing would drastically multiply these costs.

Third, requiring NSF listing would limit valid claims. NSF is considered to be the leading third-party testing facility in the country, yet still has extremely limited standards and can test for only a relatively small number of contaminants. However, Amway has performed comprehensive scientific analytical testing for many more contaminants than that for which NSF or any other third-party testing facility has developed consensus standards. Amway's water treatment products have been documented to effectively remove over 100 EPA priority pollutants while NSF can only test for approximately 40 contaminants through its Standard 53 for health effects. In addition, the EPA expects to add many more MCLs in the near future (see attachment).

As a consequence, Amway and many other companies may have to stop making scientifically valid and truthful contaminant removal claims benefiting consumers simply because NSF has not developed the necessary standards and commercial expertise to test for them. Of course, some companies would be delighted that their competition would be unable to advertise the superiority of their products. Kansas consumers, however, would find themselves unable to obtain important truthful information about the full usefulness of water treatment units they wish to buy. Required NSF listing would also throw a huge financial roadblock in front of small businesses just getting started, making it that much harder to successfully start up businesses to deal with both current and future water treatment problems.

Ironically, requiring NSF listing is unnecessary. The Kansas Consumer Protection Act already allows the state to deal effectively with those engaging in unfair or misleading practices or false advertising. Requiring manufacturers to have all of their testing performed by NSF would be of little or even negative value while completely failing to stop false and misleading advertising in the marketplace.

However, Kansas may wish to ensure that water treatment units sold within the state have been tested according to acceptable standards within the industry. We have attached language to accomplish this goal.

* * *

II. House Bill 2036 also requires that the seller provide a "manufacturer's performance data sheet" to the buyer of a water treatment unit. This is unnecessary and will only confuse consumers. Most of this information is already given to the consumer through owners' manuals or accompanying literature. Kansas may wish to require that manufacturers provide certain information - including, for example, a list of

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contaminants the unit is claimed to remove, installation instructions, capacity, warranty information and the like - in the owner's manual or accompanying literature materials, but requiring that information to be in a state-specified format would only be duplicative and expensive.

A "performance data sheet" is required in only two states, New York and Iowa, and in both cases the required information is so technical in nature that virtually no consumers can understand it. This requirement also causes enormous distribution headaches for manufacturers and marketers who distribute in those states. Therefore, we suggest that a wiser course would be to allow manufacturers to convey specified information to consumers through other means such as product literature and owners' manuals.

* * *

III. HB 2036 would also require the seller to provide the buyer with a state-printed "consumer information handbook" on water treatment units along with the product. While Amway agrees that the concept of educating the consumer is a good one, this proposal is a bad idea. This type of booklet would also greatly confuse the consumer because such a handbook simply cannot address the specific capabilities of individual water treatment systems. For example, any state booklet attempting to provide information regarding carbon-based water treatment devices such as Amway's would undoubtedly contain many inaccuracies and misinformation because the products themselves vary greatly within each class. Further, the state simply cannot provide accurate, up-to-date information which keeps up with fast-developing technological changes.

Further, national manufacturers and marketers like Amway and catalog sellers such as Sears would have an extremely difficult time in trying to include state specific consumer information handbooks with their products. Our products are offered on a national basis, and a separate state handbook would greatly reduce the effectiveness of this distribution system. This information is again best provided by the manufacturer or distributor to the customer through a manufacturer's literature.

* * *

In summary, if the intent of HB 2036 is provide the state additional tools to go after bad actors in the water treatment unit marketplace, the bill is approaching the problem in the wrong way. Its proposed requirements will not remove those bad actors from the marketplace. If Kansas wishes to crack down on unscrupulous sellers operating in the marketplace, two things must be recognized: first, the state already has significant tools in the Kansas Consumer Protection Act to enable the Attorney General's office to protect Kansas consumers against fraud, deceptive acts and unconscionable practices.

Second, the bill utterly fails in providing the state an additional weapon against such practices. Rather, Kansas should strengthen its Consumer Protection Act to give law enforcement that weapon. Recently, the states of New York and Tennessee strengthened their consumer protection laws to deal specifically with false and misleading practices and advertising in the selling of water treatment units. I have attached language which would accomplish this goal.

Thank you for the opportunity to submit comment on this important issue. Amway would appreciate the chance to work with you in developing legislation which would deal with any true problems in the water treatment marketplace. If I may answer any questions, please do not hesitate to contact me at (616) 676-7010, or through Bud Grant, of the Kansas Retail Council, of which Amway is a member.

Thank you for your kind attention.

Sincerely,



Dirk C. Bloemendaal, Senior Attorney
Corporate Government Affairs

DCB1063:jb

Enclosure

CC: Members of the House Energy and Natural Resources Committee

Suggested Language No. 1

Water treatment devices must be tested using industry accepted product testing protocols or protocols which utilize technically valid methodology using United States Environmental Protection Agency analytical testing methods for drinking water quality and maximum contaminant levels, or their equivalent.

Suggested Language No. 2

No person shall sell, offer for sale, rent, lease, or distribute any water treatment unit for use in this state after the first day of the 22nd month after the effective date of this act, unless written material which provides the following is included with each unit:

- A) The name and mailing address of the manufacturer or distributor;
- B) The name, brand or trademark under which the unit is sold, and its model number;
- C) A statement listing all contaminants the unit is capable of reducing from the water;
- D) The specifications of the unit, including:
 - 1. The filter life, if applicable;
 - 2. Where applicable, the approximate capacity of the unit, expressed in gallons and/or period of time;
 - 3. A summary of recommended operational procedures and requirements necessary for the proper operation of the unit including, but not limited to:
 - a. Electrical requirements;
 - b. Maximum and minimum operating pressure;
 - c. Maximum operating temperature;
 - d. Flow rate;
 - e. Maintenance requirements;
 - f. Replacement frequencies;
 - g. Explanation of any performance indicator, if available.
- E) Installation instructions;
- F) The manufacturer's warranty and guarantee, if applicable;
- G) A statement that performance of the water treatment unit may vary based on local water conditions;
- H) A statement, if true, that the unit is only intended for use with potable water;
- I) A statement, if true, that all the contaminants reduced by the unit are not necessarily in the user's water supply.

Suggested Language No. 3

1. A) It is unlawful for any person to print and/or disseminate any false advertising or to use or employ any deceptive act or practice as described in subdivision B of this section in the conduct of any trade or commerce for the purpose of inducing the sale, lease, rental, or distribution of water treatment units.

B) The following shall be deemed false advertising:

(a) materially false or misleading claims concerning the quality of a prospective purchaser's public water supply or private well water;

(b) materially false or misleading claims concerning the kind and degree of problems caused by water from a public water supply;

(c) materially false or misleading claims of scientific certainty regarding the relationship between acute or chronic illnesses and water quality;

(d) product performance claims and product benefit claims unless such claims are based on factual data obtained from tests conducted by a testing facility following scientifically valid test procedures, which data is in existence at the time such claims are made;

(e) uses of pictures, exhibits, graph, charts or other graphic portrayals in advertisements in a materially false or misleading manner;

(f) materially false or misleading claims that serious harm may or will occur if the product is not purchased;

(g) statements that the water flowing from a water treatment unit is "pure" unless such words are reasonably defined;

(h) claims that a water treatment unit would provide a health benefit or diminish a health risk unless reasonably based on factual data;

(i) materially false or misleading statements that the contaminants reduced by a water treatment unit are present in excess of permitted levels in the drinking water of the person whom the statement is made;

(j) uses of endorsements or testimonials, unless such endorsements or testimonials state the opinion and qualifications of the person giving them; are not materially false or misleading; and accurately reflect the context in which they were made or given;

(k) uses of tests or test results of a consumer's drinking water to state or demonstrate the presence of contaminants in a prospective purchaser's drinking water for the purpose of inducing a person to purchase a water treatment unit unless those test results either have been obtained from a certified laboratory or were performed in accordance with the United States Environmental Protection Agency approved test methods or guidelines, where applicable, and the results of the tests are not used in a materially false or misleading manner.

C) Any violation of this section shall be enforced by any remedy available pursuant to this article.

Bloemendaal

Why Requiring NSF Listing Could Severely Limit Legitimate Contaminant Removal Claims

NSF Standard 53 - Drinking Water Treatment Units: Health Effects provides a listing program which encompasses many, but not all, current primary drinking water contaminants. This listing program includes development and utilization of consensus performance testing protocols which have been established by the joint efforts of regulatory, health and industry representatives. It also encompasses toxicological evaluation of water contact components in these products, structural integrity testing and provides for inspections to ensure compliance with the listing requirement.

NSF can test for additional contaminants not included in Standard 53 under another program, but this testing in general does not have established protocols, established criteria for performance, toxicological review of components, structural integrity testing or annual inspections. Any test protocols which are developed under this program are not consensus standards, but merely reflect an agreement between NSF and the manufacturer in question as to what is acceptable.

Requiring products sold in Kansas, therefore, to have an NSF listing may restrict valid performance claims for a product to those included under Standard 53. If, however, their supplementary program is used to expand the list of contaminants which can be tested, it establishes a dual standard for acceptable documentation of performance and misleads the consumer. It also fails to address the needs of manufacturers who wish to claim contaminants other than those included under Standard 53 and the consumer who may be concerned with the removal of these contaminants from their water.

In order to assess the great number of chemical contaminants of possible concern, and from which consumers may wish to protect themselves from exposure, we've provided several attachments. Attachment I describes current Safe Drinking Water Act Primary Drinking Water Contaminants and those additional contaminants which are scheduled for regulation. Attachment II is a table which gives a summary of the scheduled phases of additional regulation. (Note that the dates of implementation have been changed since this publication). Attachment III list the most recent additions to the regulations - the Phase II Contaminants. Attachment IV shows the most recent EPA Priority List for Contaminants which may require regulation. Attachment V lists the contaminants included in NSF Standard 53.

As can easily be seen, even given some duplication in the first four attachments, the number of contaminants of concern that may be regulated in the near future far exceeds NSF Standard 53 contaminants. Also, it typically takes from one to three years for NSF to get new contaminants added to their standard, after which a manufacturer can only begin to test for a potential listing. Therefore, in sum, a tie-bar to NSF listing would drastically reduce a manufacturers' ability to make legitimate contaminant removal claims and the consumer would be denied this important information.

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4/28/91
Attachment



Amway Corporation, Ada, Michigan 49355-7410
Legal Division

Dirk C. Bloemendaal
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8-9

Complying With the New Drinking Water Quality Regulations

Frederick W. Pontius

The 1986 amendments to the Safe Drinking Water Act mandate the establishment of new drinking water quality and treatment regulations. In fulfilling this mandate, the US Environmental Protection Agency is in the process of developing, proposing, and promulgating drinking water quality regulations that will significantly change water treatment practice and water utility operations. New regulations for volatile organic chemicals, fluoride, surface water treatment, and total coliform bacteria have been promulgated. Regulations for synthetic organic and inorganic chemicals and lead and copper have been proposed. Regulations for radionuclides, additional synthetic organic and inorganic chemicals, and disinfectants and disinfection by-products are under development. The history, content, current status, and schedule of new or anticipated regulatory actions are reviewed.

New water quality regulations are causing a rapid change in the drinking water industry. Water suppliers, state regulatory agencies, and the US Envi-

ronmental Protection Agency (USEPA) all face challenges associated with new regulations mandated by the 1986 amendments to the Safe Drinking Water

Act (SDWA). The new regulations are complex and will place significant demands on water utility operation, engineering, and financial resources.

This article reviews water quality regulatory actions mandated by the 1986 SDWA amendments. Particular attention is given to explaining the history, content, current status, and schedule of recent or anticipated regulatory actions. In addition, suggestions for compliance are given where appropriate. Only highlights of selected regulatory actions and related compliance issues are discussed. Additional details concerning the content of new or proposed regulations can be found in the *Federal Register* citations referenced here or obtained from the USEPA Office of Drinking Water and state regulatory agencies. The object of this review is to serve as a guide to the current drinking water quality regulatory program* so that intelligent and timely decisions regarding long-term planning for compliance can be made.

SDWA requirements

The SDWA (PL 93-523), signed into law Dec. 16, 1974,¹ mandated the establishment of drinking water regulations that were the first to apply to all public water systems in the United States. The federal government, specifically the USEPA, was authorized to set national drinking water regulations, conduct special studies and research, and oversee implementation of the act. State governments, through their health departments and environmental agencies (referred to here as the state), were to accept the major responsibility (called primary enforcement responsibility or primacy) for implementation and enforcement of the act's provisions. Public water systems were obligated by law to

*The term "current regulatory program" refers to drinking water quality regulation status as of December 1989.

NIPDWR **DWPL**

PQL

SDWA

MCL

IMDL **QAQC** **MCLG**

1974

SMCL

1986

USEPA

as the day-to-day responsibility of meeting the regulations.

A "public water system" has 15 or more service connections or regularly serves at least 25 people 60 or more days per year. Public water systems can be publicly or privately owned and are subdivided for regulatory purposes into two major categories: community and noncommunity systems. A community system serves water to a resident population, whereas a noncommunity system serves water to a nonresident population. Noncommunity systems are further subdivided into nontransient noncom-

A "public water system" has 15 or more service connections or regularly serves at least 25 people 60 or more days per year.

munity systems (serves the same non-resident population, such as schools and factories) and transient noncommunity systems (serves a different nonresident population, such as highway rest stops and motels).

Interim regulations. Under the 1974 SDWA, the USEPA was charged with proposing enforceable National Interim Primary Drinking Water Regulations (NIPDWRs, Table 1) by March 1975. Revised Primary Drinking Water Regulations (RPDWRs) were to be adopted by September 1977. Congress severely underestimated the time required to develop credible regulations. As a result, development of the revised primary regulations slowed. Table 2 summarizes the actual development schedule for the NIPDWRs listed in Table 1.

In addition to health-related enforceable standards, the 1974 SDWA required USEPA to set nonenforceable federal guidelines for noncontaminants that may adversely affect the aesthetic quality of drinking water.² Secondary drinking water standards or secondary maximum contaminant levels (SMCLs) were initially set in 1979 (Table 3).³ The SMCL for fluoride was revised in 1986.⁴

1986 SDWA amendments. To strengthen the SDWA, particularly the regulation-setting process and groundwater protection, Congress amended most of the 1974 SDWA and added six new sections in 1986. The 1986 amendments to the SDWA (PL 99-339), signed into law June 19, 1986,⁵ mandated the establishment

of a variety of new drinking water regulations according to specific timetables.

At the time of enactment, the significant effect of the 1986 SDWA amendments on water treatment practices was clear. In addition to other provisions, section 1412* mandates the establishment of several water-quality-related regulations.

- Maximum contaminant level goals (MCLGs) and MCLs must be established for 83 contaminants listed in the Advanced Notice for Proposed Rulemakings published Mar. 4, 1982,⁶ and Oct. 5, 1983⁷ (Table 4). That no provision was included in the act to allow the USEPA to refrain from regulating any of the 83 contaminants if they are not found in drinking water supplies or for any other reason is significant. USEPA must set MCLGs and MCLs for these contaminants, although up to seven substitutes were allowed.

- MCLGs and MCLs must be established for 25 contaminants selected from a priority list to be prepared by USEPA and updated every 3 years.

- Criteria must be established under which filtration is required for public systems using surface water sources.

- Disinfection is required of all public water supplies.

Specific time lines were given in the act for regulation development (Table 5). NIPDWRs and RPDWRs were renamed as National Primary Drinking Water Regulations (NPDWRs). In addition, section 1445 requires USEPA to establish monitoring regulations for additional unregulated contaminants to develop occurrence data for evaluating health risks.

Contaminant substitutes. SDWA section 1412(b)(2) allows USEPA to substitute up to seven contaminants on the list of 83 (Table 4) if regulation of the substitutes is more likely to be protective of public health. USEPA proposed⁸ and adopted⁹ the seven substitutes listed at the end of Table 4.

Drinking water priority list (DWPL). Section 1412(b)(3) requires USEPA to develop a list of contaminants, known or anticipated to occur in public water systems, that may require regulation under this act. In developing the DWPL, USEPA was required to consider hazardous substances, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act, Section 101(14), and pesticides registered under the Federal Insecticide, Fungicide, and Rodenticide Act. In addition, the list includes the seven substitutes removed from the original list of 83.

The first DWPL was proposed July 8, 1987,⁸ and finalized Jan. 22, 1988.⁹ The initial list (Table 6) contains 53 contaminants and contaminant groups that

*Section citations refer to the amended SDWA.

Glossary

ANPRM—advance notice of proposed rulemaking
AOC—assimilable organic carbon
AWWARF—American Water Works Association Research Foundation
BAT—best available technology
CT—disinfectant concentration contact time
DBCP—dibromochloropropane
DBP—disinfection by-product
D-DBP—disinfection-by-product
DWPL—drinking water priority list
EDB—ethylene dibromide
GAC—granular activated carbon
GC—gas chromatography
GC-MS—gas chromatography-mass spectrometry
HPC—heterotrophic plate count
IOC—inorganic chemical
MCL—maximum contaminant level
MCLG—maximum contaminant level goal
MDL—method detection limit
MF—membrane filter
MTF—multiple tube fermentation
MX—3-chloro-4-(dichloromethyl)-5-hydroxy-2(5H)-furanone
NIPDWR—National Interim Primary Drinking Water Regulations
NPDWR—National Primary Drinking Water Regulations
NTIS—National Technical Information Service
P-A—presence-absence
PAH—polyaromatic hydrocarbon
PCB—polychlorinated biphenyl
POE—point of entry
POU—point of use
RMCL—recommended maximum contaminant level
RPDWR—Revised Primary Drinking Water Regulations
SDWA—Safe Drinking Water Act
SMCL—secondary maximum contaminant level
SOC—synthetic organic chemical
SWTR—Surface Water Treatment Rule
TTHM—total trihalomethane
TOC—total organic carbon
USEPA—US Environmental Protection Agency
VOC—volatile organic chemical

er occur in public water systems. The characteristics or use patterns of these systems that the potential to occur in public water systems at levels of concern is strong.⁸ By Jan. 22, 1990, proposed MCLGs and MCLs for a minimum of 25 contaminants or contaminant groups from the list given in Table 6 are to be published, and final MCLGs and MCLs are to be promulgated by Jan. 22, 1993. The initial DWPL is to be updated at 3-year intervals, with at least 25 contaminants on each list regulated.

MCLGs and MCLs. Section 1412(b)(3) authorizes the USEPA administrator to publish MCLGs and promulgate MCLs for each contaminant that, in the judgment of the USEPA administrator, may have any adverse effect on human health and that is known or anticipated to occur in public water systems. This statute is a primary driving force behind the establishment of new drinking water regulations. Note that, as in the 1974 SDWA, the adverse health effect of a contaminant need not be proved conclusively prior to regulation.

Section 1412(a)(2) redefines the previously established recommended maximum contaminant levels (RMCLs) as MCLGs. MCLGs are nonenforceable, health-based goals. Section 1412(b)(4) requires that MCLGs be set at a level at which no known or anticipated adverse effect on human health occurs and that allows for an adequate margin of safety, without regard to the cost of reaching these goals.

MCLs are enforceable standards. Sections 1412(b)(4) and (5) require that MCLs be set as close to the MCLGs as feasible, with the use of the best technology, treatment techniques, and other means that are available, taking cost into consideration.

Section 1412(a)(3) requires that an MCLG be proposed and promulgated simultaneously with the corresponding MCL. To accomplish this, USEPA assesses the available technical and scientific information on the contaminant(s) of concern and develops proposed regulations by means of an internal work group. Separate support documents for each contaminant are prepared on occurrence and human exposure, health effects and toxicology, analytical methods and monitoring, and treatment technologies and costs.

The process of setting MCLGs for noncarcinogens differs from the process used for carcinogens. For contaminants not considered to have a carcinogenic effect, MCLGs are based on "no effect" levels for chronic-lifetime periods of contaminant exposure that include a factor of safety. For noncarcinogenic toxicity, the assumption is made that an organism can tolerate and detoxify some amount of a toxic agent without ill effects up to a certain threshold. A

TABLE 1
National Interim Primary Drinking Water Regulations

Contaminant	MCL (enforceable)*
Organics	
2,4-D	0.1 mg/L
Endrin	0.0002 mg/L
Lindane	0.0004 mg/L
Methoxychlor	0.1 mg/L
Toxaphene	0.005 mg/L
2,4,5-TP (Silvex)	0.01 mg/L
Trihalomethanes (sum of chloroform, bromoform, bromodichloromethane, dibromochloromethane)	0.10 mg/L
Inorganics	
Arsenic	0.05 mg/L
Barium	1.0 mg/L
Cadmium	0.010 mg/L
Chromium	0.05 mg/L
Fluoride	1.4-2.4 mg/L† (ambient temperature)
Lead	0.05 mg/L
Mercury	0.002 mg/L
Nitrate (as N)	10 mg/L
Selenium	0.01 mg/L
Silver	0.05 mg/L
Sodium and corrosion	No MCL; monitoring and reporting only
Radionuclides	
Beta particle and photon radioactivity	4 mrem (annual dose equivalent)
Gross alpha particle activity	15 pCi/L
Radium-226 plus radium-228	5 pCi/L
Microbials	
Coliforms	<1/100 mL
Turbidity	1 ntu (up to 5 ntu)

*Monitoring and reporting for each contaminant are also required.

†Revised MCL and MCLG for fluoride is 4 mg/L.

TABLE 2
NIPDWR development schedule

Regulation	Promulgation Date	Effective Date	Coverage
NIPDWR	Dec. 24, 1975	June 24, 1977	Inorganic, organic, and microbiological contaminants and turbidity
First amendment	July 9, 1977	June 24, 1977	Radionuclides
Second amendment	Nov. 29, 1979	Varies depending on system size	THMs
Third amendment	Aug. 27, 1980	Feb. 27, 1982	Special monitoring requirements for corrosion and sodium
Fourth amendment	Feb. 28, 1983	Mar. 30, 1983	Identifies best generally available means with which to comply with THM regulations

TABLE 3
National Secondary Drinking Water Regulations

Contaminant	Current SMCLs	SMCLs Proposed Under Phase II*	SMCL Being Considered Under Phase V*
Chloride	250 mg/L		
Color	15 cu		
Copper	1 mg/L		
Corrosivity	Noncorrosive		
Fluoride	2 mg/L†		
Foaming agents	0.5 mg/L		
Iron	0.3 mg/L		
Manganese	0.05 mg/L		
Odor	3 Threshold odor number		
pH	6.5-8.5		
Sulfate	250 mg/L		
Total dissolved solids	500 mg/L		
Zinc	5 mg/L		
Aluminum		0.05 mg/L	
<i>o</i> -Dichlorobenzene		0.01 mg/L	
<i>p</i> -Dichlorobenzene		0.005 mg/L	
Ethylbenzene		0.03 mg/L	
Monochlorobenzene		0.1 mg/L	
Pentachlorophenol		0.03 mg/L	
Silver		0.09 mg/L	
Toluene		0.04 mg/L	
Xylene		0.02 mg/L	
Hexachlorocyclopentadiene			0.008 mg/L

*Phases are identified and defined in the text.

†The SMCL for fluoride was revised in 1986.¹

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TABLE 4

Contaminants required to be regulated under the 1986 SDWA amendments

<p>Volatile organic chemicals Benzene Carbon tetrachloride Chlorobenzene Dichlorobenzene 1,2-Dichloroethane 1,1-Dichloroethylene <i>cis</i>-1,2-Dichloroethylene <i>trans</i>-1,2-Dichloroethylene Methylene chloride Tetrachloroethylene Trichlorobenzene 1,1,1-Trichloroethane Trichloroethylene Vinyl chloride</p> <p>Microbiology and turbidity <i>Giardia lamblia</i> <i>Legionella</i> Standard plate count Total coliforms Turbidity Viruses</p> <p>Inorganics Aluminum Antimony Arsenic Asbestos Barium Beryllium Cadmium Chromium Copper Cyanide Fluoride Lead Mercury Molybdenum Nickel Nitrate Selenium Silver Sodium Sulfate Thallium Vanadium Zinc</p> <p>Organics Acrylamide Adipates Alachlor Aldicarb Atrazine</p>	<p>Organics, continued Carbofuran Chlordane Dalapon Dibromochloropropane (DBCP) Dibromomethane 1,2-Dichloropropane Dinoseb Diquat Endothall Endrin Epichlorohydrin Ethylene dibromide (EDB) Glyphosphate Hexachlorocyclopentadiene Lindane Methoxychlor Pentachlorophenol Phthalates Picloram Polychlorinated biphenyls (PCBs) Polynuclear aromatic hydrocarbons (PAHs) Simazine 2,3,7,8-Tetrachlorodibenzodioxin (dioxin) Toluene Toxaphene 2,4,5-TP (Silvex) 1,1,2-Trichloroethane Vydate Xylene</p> <p>Radionuclides Beta particle and photo radioactivity Gross alpha particle activity Radium-226 and -228 Radon Uranium</p> <p>Removed from SDWA List of 1983 Aluminum Dibromomethane Molybdenum Silver Sodium Zinc</p> <p>Substituted into SDWA List of 1983 Aldicarb sulfone Aldicarb sulfoxide Ethylbenzene Heptachlor Heptachlor epoxide Nitrite Styrene</p>
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TABLE 5

*Water quality regulation development time frame specified by the amended SDWA**

Date	Action
June 1986	SDWA amendments enacted
June 1987	Publish MCLGs and promulgate NPDWRs for nine of the contaminants listed in the Mar. 4, 1982, and Oct. 5, 1983, <i>Federal Registers</i> (See Table 2)
August 1987	Publish proposed list of contaminants for substitution
December 1987	Publish final list of contaminants to be substituted
January 1988	Promulgate criteria under which filtration is required as a treatment technique for public water systems using surface sources
June 1988	Publish priority list of contaminants known or anticipated to occur in public water systems that may require regulation under the SDWA
June 1989	Publish MCLGs and promulgate NPDWRs for at least 40 of the contaminants listed in Table 2
June 1989	Publish MCLGs and promulgate NPDWRs for the remainder of the contaminants listed in Table 2
January 1990	States must have adopted regulations to implement filtration requirements
January 1990	Promulgate NPDWRs requiring disinfection as a treatment technique for all public water systems
January 1990	Publish proposed MCLGs and NPDWRs for at least 25 contaminants on the January 1988 priority list
January 1991	Publish MCLGs and promulgate NPDWRs for the 25 contaminants proposed in January 1990
January 1991	Publish updated priority list of contaminants known or anticipated to occur in public water systems

*Some actions have slipped beyond the dates specified in the amended SDWA.

three. This effect has not, however, been scientifically demonstrated for carcinogens. This means that any exposure to a carcinogen may theoretically represent some finite level of risk. Even though such a risk could be small at very low exposure levels, USEPA has adopted the policy that the MCLG for a known or probable human carcinogen will be set at zero, rather than at some *de minimus* risk level. Note that zero means none, as opposed to a measured value. Because current analytical methods have a finite detection limit, zero cannot be measured. Thus, zero is a concept, not a number.

Best available technology. Section 1412(a)(6) requires that for each MCL established, the technology, treatment technique, and other means feasible for purposes of meeting the MCL (referred to as best available technology, or BAT) be listed. Section 1412(a)(5) requires that the BAT be examined for efficacy under field conditions and not solely under laboratory conditions. In addition, granular activated carbon (GAC) adsorption is specified as BAT for treatment of synthetic organic chemicals (SOCs); other measures specified for SOC removal must be at least as effective as GAC adsorption. The amended SDWA does not, however, require the use of BAT. Systems may use any "appropriate technology" that is acceptable to the state and that results in compliance with an MCL. BAT designations are only recommendations.

Treatment technique allowance. Section 1412(b)(7) allows the USEPA to require the use of a treatment technique in lieu of establishing an MCL, if it is determined that monitoring for the contaminant is not economically or technologically feasible. The availability, accuracy, and practicality of available analytical methods for a contaminant significantly influence whether an MCL or a treatment technique will be established for that contaminant. This provision was retained essentially unchanged from the 1974 SDWA.

Variations. Section 1415 authorizes a state to grant one or more variations to water systems that cannot comply with an MCL because of characteristics of the water source(s). A variance may only be granted to those systems that have installed full-scale BAT for treatment of the MCL being violated. Before the state can grant a variance, it must find that the variance will not result in an unreasonable risk to health. Should a variance be granted, the state must prescribe a schedule for compliance and any additional control measures required of the public water system during the variance period. Even though a treatment plant is not achieving the desired degree of treatment, it must be kept in operation.

Exemptions. Section 1416 authorizes a state to exempt a water system from

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TABLE 6
Drinking water priority list

Contaminant or Contaminant Group to be Regulated	
Aluminum	1,3-Dichloropropane
Ammonia	2,2-Dichloropropane
Boron	1,3-Dichloropropene
Bromobenzene	2,4-Dinitrotoluene
Bromochloroacetonitrile	ETU
Bromodichloromethane	Halogenated acids, alcohols, aldehydes, ketones, and other nitriles
Bromoform	Hypochlorite ion
Chloramine	Isophorone
Chlorate	Methyltertbutylether
Chlorine	Metolachlor
Chlorite	Metribuzin
Chloroethane	Molybdenum
Chloroform	Ozone by-products
Chloromethane	Silver
Chloropicrin	Sodium
o-Chlorotoluene	Strontium
p-Chlorotoluene	2,4,5-T
Cryptosporidium	1,1,1,2-Tetrachloroethane
Cyanazine	1,1,2,2-Tetrachloroethane
Cyanogen chloride	Trichloroacetonitrile
Dibromoacetonitrile	1,2,3-Trichloropropane
Dibromochloromethane	Tribluralin
Dibromomethane	Vanadium
Dicamba	Zinc
1,1-Dichloroethane	
Dichloroacetonitrile	

an MCL or treatment technique requirement if it finds that:

- the system is unable to comply with the requirement because of compelling factors (which may include economic factors),

- the exemptions will not result in an unreasonable risk to health, and

- the system was in operation as of Jan. 1, 1989, or, if it was not, no reasonable alternative source of drinking water is available to the new system.

The primary difference between an exemption and a variance is that treatment does not have to be installed before the system applies for an exemption. As a condition of granting the water system an exemption, the state may impose conditions such as increased monitoring or public notification or it may require that point-of-use (POU) devices or bottled water be used for the duration of the exemption. In general, an exemption cannot exceed three years; however, systems with fewer than 500 service connections (about 1,500 people) may be eligible for a renewable exemption every two years, with cause.

Public notification requirements.

The 1974 SDWA required owners or operators of community water systems to notify customers they serve when drinking water standards were violated. The purpose of the public notification requirement was stated as part of the House of Representatives Report on the 1974 SDWA:

The purpose of this notice requirement is to educate the public as to the extent to which public water systems serving them are performing inadequately in light of the objectives and requirements of this bill. Such public education is deemed essential by the Committee in order to develop

public awareness of the problems facing public water systems . . . and to advise the public of potential or actual health hazards.

Public notification requirements were initially established by USEPA in 1975.¹⁰ The 1986 SDWA amendments direct USEPA to revise the original public notification requirements to provide for different types and frequencies of notices based on the differences between violations. In addition, the revised requirements were to take into account the seriousness of any potential adverse health effects that may be involved. USEPA published final revised general public notification requirements Oct. 28, 1987.¹¹ Technical amendments to the revised requirements were published Apr. 17, 1989.¹² The new public notification requirements went into effect Apr. 28, 1989.¹³

The revised public notification regulations require public notification if any one of six conditions occurs:

- (1) failure of the system to comply with an applicable MCL,
- (2) failure to comply with a prescribed treatment technique,
- (3) failure of the system to perform water quality monitoring as required by the regulations,
- (4) failure to comply with testing procedures as prescribed by an NPDWR,
- (5) issuance of a variance or an exemption, or
- (6) failure to comply with the requirements of any schedule that has been set under a variance or exemption.

Because some violations are more serious than others, two tiers of public notification were established (Table 7). Tier 1 violations are considered more

serious than tier 2 violations. Consequently, tier 1 violations have more extensive notification requirements than tier 2 violations. Tier 1 violations are further classified as acute or nonacute. Acute violations involve an acute risk to human health and have the most intensive public notification requirements, including television and radio announcements. Violations of state reporting requirements, however, do not require public notification.

Acute violations are listed in the general public notice regulations. Currently specified acute violations are as follows:¹³

- any violation specified by the state as posing an acute risk to human health;
- violation of the MCL for nitrate;
- violation of the MCL for total coliforms, when fecal coliforms or *E. coli* are present; and
- occurrence of a waterborne disease outbreak in an unfiltered system.

The general public notice requirements apply to all regulatory phases. Each new regulatory phase will specifically identify acute violations associated with the rule that will be added to the preceding list. In addition, mandatory language that must be used in public notices will also be specified in each new regulatory phase.

Current regulatory agenda

Prior to the 1986 SDWA amendments, USEPA was proceeding on an established regulatory agenda that involved development of new water quality regulations in four phases. The amendments added new tasks to the agenda and accelerated USEPA's timetable. To accomplish the mandate of the 1986 SDWA amendments, new requirements were incorporated into certain phases already under development at that time and new regulatory phases were added.

The regulatory agenda established by USEPA immediately following the 1986 SDWA amendments was based on the schedule established by Congress. The established development and review process for proposed and final USEPA regulations is extensive and involves public participation at several levels. Congress again underestimated the time required to develop sound regulations, and some actions have slipped past the schedule shown in Table 5.

The current schedule of development for new regulations is summarized in Table 8. All current regulatory phases and schedules are shown. In addition, *Federal Register* citations are listed for the Advance Notice for Proposed Rule-making (ANPRM) notices and proposed and final rule notices. The specific content of each regulatory phase is summarized in the following sections. Promulgated regulations are discussed first; then proposed and anticipated regulations are discussed.

Voluntary organic chemicals (VOCs) rule (Case I)

MCLGs were proposed for eight VOCs (Table 9) June 12, 1984.¹⁴ Final MCLGs and proposed MCLs for the eight VOCs were published Nov. 13, 1985.^{15,16} Detailed discussions of the history of the regulation of VOCs in drinking water, occurrence, and health effects were presented in these notices. USEPA proposed to amend the MCLG for paradichlorobenzene and repropoed the MCL Apr. 17, 1987.¹⁷ The final VOC rule was

lished July 8, 1987,¹⁸ and corrections to the final rule were published July 1, 1988.¹⁹

Major provisions. The VOC regulation establishes MCLGs and MCLs for the eight VOCs listed in Table 9. Monitoring is a significant aspect of this rule and requirements are specified for the eight VOCs and fifty-one additional contaminants. The requirements pertain to both community water systems and nontransient, noncommunity water systems (such as factories and schools).

Monitoring requirements. The basic monitoring requirement is one sample per quarter at each entry point to the distribution system for groundwater and surface water sources. Composite samples of up to five sampling points are allowed. Initial monitoring requirements are phased in, based on the size of the population served (Table 10); small systems have the greatest time allowance for implementing the monitoring program.

Systems with groundwater sources

TABLE 7
Summary of public notification requirements

Violation Category Type	Mandatory Health Effects Information Required (All Public Water Supplies)	Notice to New Billing Units (Community Water Supplies Only)	Type of Public Water Supply	Time Frame Within Which Notice Must Be Given (Box indicates time frame for initial notice, and is followed by the frequency of repeat notice until the violation is resolved.)						
				Violation:	72 hours	7 days	14 days	45 days	3 months	Annual
Tier 1										
MCL	Yes	Yes	Community	Acute violations:						
				TV and radio <input type="checkbox"/> No repeat						
Treatment technique	Yes	Yes		Newspaper* <input type="checkbox"/> No repeat						
				Mail or hand delivery† <input type="checkbox"/> Quarterly repeat						
Variance or exemption schedule violation	Yes	Yes		Nonacute violations:						
				Newspaper* <input type="checkbox"/> No repeat						
				Mail or hand delivery† <input type="checkbox"/> Quarterly repeat						
			Noncommunity†	Option 1: Notice as for Community Water Systems						
				or						
				Option 2: Acute violations:						
				Posting or hand delivery <input type="checkbox"/> Continuous/quarterly repeat§						
				Nonacute violations:						
				Posting or hand delivery <input type="checkbox"/> Continuous/Quarterly repeat§						
Tier 2										
Monitoring**	No	No	Community	Newspaper* <input type="checkbox"/> Quarterly repeat by mail or hand delivery						
Testing procedure	No	No								
Variance or exemption issued	Yes	No	Noncommunity†	Option 1: Notice as for Community Water Systems						
				Option 2: Posting or hand delivery <input type="checkbox"/> Continuous quarterly repeat§						

*If no newspaper of general circulation is available, posting or hand delivery is required.
 †May be waived
 ‡Includes both transient noncommunity public water systems and nontransient noncommunity public water systems
 **Less frequent notice (but no less than annual) to be required
 §Continuous repeat required if posting is used; quarterly repeat required if hand delivery is used

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... sample at each entry point to the distribution system (after the application of any treatment). For example, if a system has four wells, each with unique points of entry to the distribution system, four separate samples would have to be taken. If a system has four wells that are combined before entry to the distribution system, only one sample is required. This approach was chosen as an economical means of assuring that the MCL is not exceeded at the tap, because it avoids dealing with mixing zones when multiple source waters exist.

Groundwater samples must be taken quarterly. The state may reduce the monitoring frequency depending on whether any of the regulated or additional VOCs (discussed later) are detected in the first sample (or any subsequent sample) and whether the system has been designated by the state as vulnerable to potential contamination.

Systems with surface water sources are required to sample at points in the distribution system representative of each water source or at entry points to the distribution system after any application of treatment. These points must be sampled quarterly for one year, regardless of whether any VOCs are detected. Repeat monitoring must be conducted based on judged vulnerability and previous monitoring results.

Monitoring for vinyl chloride is required only for groundwater systems and only if vinyl chloride precursors are detected. If the chemical is detected, the system must analyze for vinyl chloride at each distribution or entry point at which one or more of the chemicals was found. If the first analysis does not detect vinyl chloride, the state may reduce the frequency of vinyl chloride monitoring to once every three years. Systems using surface water sources must analyze for vinyl chloride at the discretion of the state.

Analytical requirements. Analytical methods approved by USEPA must be used and analyses must be performed by laboratories. Five methods are currently approved for compliance monitoring and are based on gas chromatography (GC) or GC-mass spectrometry (MS) techniques.¹⁸ Note that USEPA-approved analytical methods are specified in the *Federal Register* notice for each regulatory phase. Information regarding USEPA-approved analytical methods may be obtained by contacting the USEPA Environmental Monitoring and Support Laboratory, 26 W. Martin Luther King Dr., Cincinnati, OH 45268.

Compliance requirements. Compliance with the MCLs is determined by a running annual average of quarterly samples for each sampling location. If the average is greater than the MCL, the system is out of compliance.

BAT. BAT for all VOCs except vinyl

TABLE 8
Schedule of USEPA drinking water quality regulations

Regulation	Action	Date*	Federal Register Citation	
Promulgated regulations VOCs (Phase I)	ANPRM	Mar. 4, 1982	47 FR 9350	
	Proposed rule (RMCLs)	June 12, 1984	49 FR 24330	
	Final rule (RMCLs)	Nov. 13, 1985	50 FR 46880	
	Proposed rule (MCLs)	Nov. 13, 1985	50 FR 46902	
	Proposed rule (<i>para</i> -dichlorobenzene)	Apr. 17, 1987	52 FR 12876	
	Final rule	July 8, 1987	52 FR 25690	
	Final rule corrections	July 1, 1988	53 FR 25108	
	Fluoride (Phase IIA)	ANPRM	Oct. 5, 1983	48 FR 45502
		Proposed rule (RMCL)	May 14, 1985	50 FR 20164
		Final rule (RMCL)	Nov. 14, 1985	50 FR 47142
Proposed rule (MCL, SMCL)		Nov. 14, 1985	50 FR 47156	
Surface Water Treatment Rule	Final rule	Apr. 2, 1986	51 FR 11396	
	ANPRM	Oct. 5, 1983	48 FR 45502	
	Proposed rule	Nov. 13, 1985	50 FR 46936	
	Proposed rule	Nov. 3, 1987	52 FR 42178	
	Proposed rule (Extension)	Jan. 7, 1988	53 FR 1892	
	Notice of options	May 6, 1988	53 FR 16348	
Total Coliform Rule	Final rule	June 29, 1989	54 FR 27488	
	Proposed rule	Nov. 3, 1987	52 FR 42224	
	Notice of options	May 6, 1988	53 FR 16348	
Proposed regulations Lead and copper	Final rule	June 29, 1989	54 FR 27547	
	ANPRM	Oct. 5, 1983	48 FR 45502	
	Proposed rule (MCLG)	Nov. 13, 1985	50 FR 46936	
SOCs & IOCs (Phase II)	Proposed rule (MCLGs/MCLs and treatment technique)	Aug. 18, 1988 (Nov. 1990)*	53 FR 31516	
	Final rule			
	ANPRM	Oct. 5, 1983	48 FR 45502	
Anticipated regulations SOCs & IOCs (Phase V)	Proposed rule	Nov. 13, 1985	50 FR 46936	
	Proposed rule	May 22, 1989 (Dec. 1990)	54 FR 22062	
	Final rule			
Radionuclides (Phase III)	ANPRM	Oct. 5, 1983	48 FR 45502	
	ANPRM	Nov. 13, 1985	50 FR 16936	
	Proposed rule	(June 1990) (March 1992)		
D-DBP (Phase VIa)	Final rule			
	ANPRM	Oct. 5, 1983	48 FR 45502	
	ANPRM	Sept. 30, 1986 (Sept. 1990) (June 1992)	51 FR 34836	
D-DBP (Phase VIa)	Proposed rule	(Late 1991)		
	Final rule	(1993)		

*Dates in parentheses are anticipated and subject to change.

TABLE 9
VOC (Phase I) regulations

Compound	MCLG mg/L	MCL mg/L
Benzene	zero	0.005
Carbon tetrachloride	zero	0.005
<i>para</i> -Dichlorobenzene	0.075	0.075
1,2-Dichloroethane	zero	0.005
1,1-Dichloroethylene	0.007	0.007
1,1,1-Trichloroethane	0.20	0.20
Trichloroethylene	zero	0.005
Vinyl chloride	zero	0.002

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TABLE 10
Monitoring requirements for VOCs (Phase I)

Initial Monitoring*		
Size of Population Served	Begin By	Complete By
>10,000	Jan. 1, 1988	Dec. 31, 1988
3,300-10,000	Jan. 1, 1989	Dec. 31, 1989
<3,300	Jan. 1, 1991	Dec. 31, 1991

Repeat Monitoring		
Status†	Groundwater	Surface Water
VOCs not detected; source judged not vulnerable to possible contamination	Repeat every five years	State discretion
VOCs not detected; source judged vulnerable to possible contamination	Repeat every three years	Repeat every three years
More than 500 system connections	Repeat every five years	Repeat every five years
Less than 500 system connections	Sample quarterly	Sample quarterly
VOCs detected		

*Sampling site and monitoring frequency depend on the type of source water.

†States must recertify vulnerability status every three years for systems serving >500 connections, every five years for systems serving <500 connections. States may, however, change the vulnerability status at any time.

TABLE 11
Additional contaminants for which monitoring is required under the VOC (Phase I) rule

List 1	List 2	List 3
Bromobenzene	Ethylene dibromide (EDB)	Bromochloromethane
Bromodichloromethane	1,2-Dibromo-3-chloropropane (DBCP)	n-Butylbenzene
Bromoform		Dichlorodifluoromethane
Bromomethane		Fluorotrichloromethane
Chlorobenzene		Hexachlorobutadiene
Chlorodibromomethane		Isopropylbenzene
Chloroethane		p-Isopropyltoluene
Chloroform		Naphthalene
Chloromethane		n-Propylbenzene
o-Chlorotoluene		sec-Butylbenzene
p-Chlorotoluene		tert-Butylbenzene
Dibromomethane		1,2,3-Trichlorobenzene
m-Dichlorobenzene		1,2,4-Trichlorobenzene
o-Dichlorobenzene		1,2,4-Trimethylbenzene
trans-1,2-Dichloroethylene		1,3,5-Trimethylbenzene
cis-1,2-Dichloroethylene		
Dichloromethane		
1,1-Dichloroethane		
1,2-Dichloropropane		
1,3-Dichloropropane		
2,2-Dichloropropane		
1,1-Dichloropropene		
1,3-Dichloropropene		
Ethylbenzene		
Styrene		
1,1,1,2-Tetrachloroethane		
1,1,2,2-Tetrachloroethane		
Tetrachloroethylene		
1,1,2-Trichloroethane		
1,2,3-Trichloropropane		
Toluene		
p-Xylene		
o-Xylene		
m-Xylene		

TABLE 12
Monitoring requirements for additional contaminants under the VOC (Phase I) rule

Initial Monitoring		
Size of Population Served	Begin By	Complete By
>10,000	Jan. 1, 1988	Dec. 31, 1988
3,300-10,000	Jan. 1, 1989	Dec. 31, 1989
<3,300	Jan. 1, 1991	Dec. 31, 1991

Sampling Conditions	Groundwater	Surface Water
Sample locations	At each entry point to the distribution system representative of each well	In distribution system representative of each source
Number of samples	One sample; confirmation sample at the discretion of the state	One sample each quarter per source for one year; confirmation samples at the discretion of the state

Repeat Monitoring—Every five years

change is packed-tower stripping or GAC adsorption. Packed-tower stripping is the only BAT for vinyl chloride. Point of entry (POE) devices, although not designated BAT, are also an acceptable means of compliance, with state approval, if certain criteria are met. POU devices and bottled water are considered acceptable, at state discretion, only as interim measures to avoid unreasonable risks to health until full compliance can be achieved.

Additional contaminant monitoring. To satisfy the requirements of section 1445(a)(1), monitoring requirements for 51 additional contaminants were included in the VOC rule. The contaminants to be monitored are grouped into three lists (Table 11):

- List 1—thirty-four compounds that must be monitored by all systems.

- List 2—two compounds that must be monitored by systems whose water supply is determined to be vulnerable to possible contamination.

- List 3—fifteen compounds that may be monitored by systems at the discretion of the state.

The general monitoring schedule for the additional contaminants is given in Table 12. Repeat monitoring is required every five years. USEPA, however, expects to specify a new list for unregulated contaminants every five years, so the list will change over time. MCLs are also being developed for many of the additional contaminants to be dealt with in future regulations.

As in VOC monitoring, analyses must be performed by certified laboratories using USEPA-approved methods specified in the *Federal Register* notice, and composite samples of up to five sources are allowed.¹⁸ Systems serving fewer than 150 connections are considered to be in compliance with the additional contaminant monitoring requirements if they provide water samples or the opportunity for sampling to the state.

Public notification. All general public notice requirements apply to the VOC rule. Mandatory language to be included in public notices for violations of VOC MCLs is specified.

Variances and exemptions. A water system may apply for a variance or exemption from any VOC MCL requirement if the appropriate criteria are met. As a condition of granting a variance or exemption, the state may impose conditions on the system, such as increased monitoring or public notification or it may require the use of POU devices or bottled water if either is needed to avoid an unreasonable risk to health.

Compliance issues. The VOC rule became effective Jan. 9, 1989. Deadlines have expired for initial VOC and additional contaminant monitoring by systems serving populations of >3,300 people. The monitoring deadline for

stems serving populations of people is Dec. 31, 1991. State implementation of this rule is well under way, and water utilities are expected to comply with its requirements.

Vulnerability. Vulnerability assessments affect repeat monitoring requirements. The vulnerability of each water system is determined by the state based on an assessment of several factors, including previous monitoring results; number of people served by the water system; proximity of the system to commercial or industrial use, disposal, or storage of VOCs; and level of protection given to the water source, such as a watershed management or wellhead protection program.

A system is considered vulnerable for a period of three years after any positive sample of one or more VOCs. Conversely, sampling requirements can be reduced from quarterly to no less than annually after no VOCs are detected for a three-year period.

Composite sampling. Compositing of samples is intended to reduce costs, especially for small systems. It is viewed as a screening test to determine whether samples from multiple sampling sites may be contaminated by VOCs. Composite samples must be analyzed within 14 days of collection. If any VOC is detected in a composite sample, followup analysis is required for each source within 14 days of receipt of laboratory results.

Fluoride (Phase IIA)

The NIPDWR for fluoride (Table 2) was based on ambient air temperature to account for assumed differences in water consumption between cold and warm climates. An RMCL was proposed May 14, 1985,²⁰ and finalized Nov. 14, 1985.²¹ The proposed MCL and SMCL were published Nov. 14, 1985,²² and finalized Apr. 2, 1986.²³ The fluoride rule, along with the VOC rule, satisfied the statutory requirement under the amended SDWA that USEPA regulate nine substances by June 1987.

Major provisions. Based on review of health effects information available at the time, USEPA set both the MCLG and MCL at 4.0 mg/L to protect against crippling skeletal fluorosis. The SMCL was set at 2.0 mg/L to protect against objectionable dental fluorosis, not considered by USEPA to be an adverse health effect.

Monitoring requirements. Monitoring is required yearly for systems using surface water sources and every three years for systems using groundwater sources. A state may reduce monitoring to once every 10 years if it determines that the system is not likely to exceed the MCL. A state also may require monitoring more frequently than the minimum. Note that the Centers for

Disease Control recommends daily fluoride monitoring for systems that practice fluoridation.²⁴

Sampling is required at points in the distribution system that are representative of household taps. At a minimum, separate distribution system samples are required for each source water the utility uses. Because multiple source waters in a single system can have different fluoride levels, systems must sample at an entry point to the distribution system representative of the maximum fluoride levels occurring under normal operating conditions.

Analytical requirements. Four analytical methods are USEPA-approved for compliance monitoring: (1) ion selective

All public water systems using any surface water or groundwater that is under the direct influence of surface water are required to disinfect.

electrode, (2) automated ion selective electrode, (3) colorimetric SPADNS, and (4) complexone.²⁵ Analyses for compliance monitoring must be conducted by certified laboratories.

BAT. Central treatment using activated alumina adsorption or reverse osmosis is specified as BAT for fluoride removal.

Compliance requirements. Compliance with the fluoride MCL is based on each sampling point. If any sampling point is determined to be out of compliance, the system is deemed out of compliance.

Public notification. The general public notice requirements apply to this rule. In addition, community water systems that exceed the SMCL, but not the MCL, are required to give special notice annually (or at the time service begins in the case of new billing units) using mandatory language that informs customers of the significance of exceeding the SMCL.

Variations and exemptions. A system may apply for a variance or exemption from the fluoride MCL. As a condition of a variance, a schedule of compliance will be specified by the state that may require the system to examine the following methods to determine their effectiveness for reducing fluoride levels:

- modification of lime softening,
- alum coagulation,

- electro dialysis,
- anion exchange resins,
- well-field management,
- alternative sources, and
- regionalization.

The state may require the use of one of these or of other treatment methods in connection with the variance compliance schedule if the treatment method is found to be technically feasible, economically reasonable, and achieves fluoride reductions commensurate with the costs incurred for installation and use.

Compliance issues. The MCL for fluoride became effective Oct. 2, 1987. The provisions of the rule are in effect and community water systems are expected to comply with its requirements. USEPA estimates that about 300 community water systems currently exceed the 4.0-mg/L fluoride MCL. The rule does not apply to noncommunity systems.

SDWA section 1412(b)(9) requires USEPA to review all primary drinking water regulations at least once every three years, and USEPA has initiated a review of the current fluoride standard. Following review of health effects information that has become available since the rule was established, USEPA will determine whether or not the MCLG, MCL, or both should be changed. Included in this review will be the results of a bioassay from the National Toxicology Program on the incidence of cancer in animals exposed to high doses of fluoride. USEPA's review is expected to take at least a year and results will not be published until 1991.

Surface water treatment regulations

Regulations for filtration, disinfection, turbidity, *Giardia lamblia*, viruses, *Legionella*, and heterotrophic bacteria were proposed Nov. 3, 1987,²⁵ and promulgated June 29, 1989.²⁶ Known as the Surface Water Treatment Rule (SWTR), the regulations apply to all public community and noncommunity water systems that use surface water sources or groundwater sources under the direct influence of surface water. The basis for this rule is the assumption that all surface waters and groundwaters under the direct influence of surface water are at risk, at least to some degree, from contamination by *Giardia lamblia* and other protozoa, viruses, and pathogenic bacteria. Public water systems using these source waters must provide minimum levels of treatment to ensure protection from illnesses caused by these contaminants.

Major provisions. All public water systems using any surface water or groundwater under the direct influence of surface water are required to disinfect and may be required by the state to install filtration, unless certain water quality source requirements and site-specific requirements are met. An MCLG of zero is established for *Giardia lamblia*,

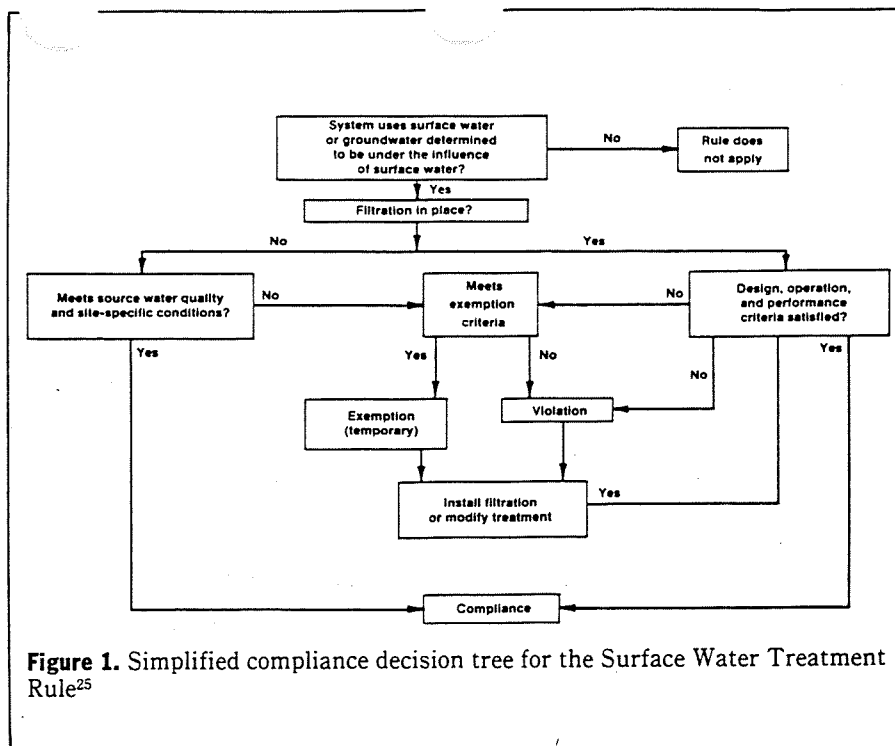


Figure 1. Simplified compliance decision tree for the Surface Water Treatment Rule²⁵

viruses, and *Legionella*. USEPA recommends levels as close to zero as possible for turbidity and heterotrophic plate count (HPC) bacteria, although MCLGs have not been formally established.

Treatment technique requirements are established in place of MCLs for *Giardia*, viruses, HPC bacteria, *Legionella*, and turbidity. Treatment (disinfection with or without filtration) must achieve at least 99.9 percent (frequently called 3-log) removal or inactivation of *Giardia lamblia* cysts and 99.99 percent (frequently called 4-log) removal or inactivation of viruses.

Operating criteria are established for systems that currently have filtration or that must install filtration because of this rule. Filtered water turbidity must at no time exceed 5 ntu and must meet the following turbidity limits in 95 percent of the measurements taken:

- conventional treatment or direct filtration—0.5 ntu,
- slow sand filtration—1 ntu,
- diatomaceous earth filtration—1 ntu, and
- other technologies approved by the state—1 ntu.

Turbidity measurements must be made every 4 hours by grab sampling or continuous monitoring.

The residual disinfectant in treated water entering the distribution system cannot be less than 0.2 mg/L for more than 4 hours. The residual disinfectant in treated water anywhere in the distribution system cannot be undetectable in more than 5 percent of the samples taken in a month, for any two consecutive months. A system may measure for HPC in lieu of disinfectant residual. If the

HPC measurement is less than 500 colonies/mL, the site is considered to have a "detectable" residual for compliance purposes.

Requirements to avoid filtration.

A public water system using surface water or groundwater under the influence of surface water must use filtration unless it meets criteria related to source water quality and site-specific conditions. The criteria are divided into eight areas, described in general as follows:

(1) Coliform limits—to avoid filtration, the fecal coliform level prior to disinfection must be less than or equal to 20/100 mL in at least 90 percent of samples taken, or the total coliform level prior to disinfection must be less than or equal to 100/100 mL in at least 90 percent of samples taken. Sampling frequency is based on system size. The calculation is based on the previous six months of monitoring results.

(2) Turbidity limits—to avoid filtration, the turbidity level prior to disinfection must not exceed 5 ntu, based on measurements taken every 4 hours. A system may occasionally exceed 5 ntu and still avoid filtration if the state determines that this turbidity level occurred because of unusual circumstances and not more than two such violations have occurred in the past 12-month period or more than five violations in the past 120 months.

(3) Disinfection—to avoid filtration, a system must practice disinfection and achieve 99.9 and 99.99 percent inactivation of *Giardia* cysts and viruses, respectively. This must be demonstrated by the system each day it delivers water to consumers by meeting minimum CT

values of the rule. (See reference 26 for specific CT values.) CT is the product of disinfectant residual C (mg/L) times contact time T (minutes), measured at peak hourly flow determined at or prior to the first customer tap. As stated previously, the disinfectant residual in water entering the distribution system must not be less than 0.2 mg/L. The disinfectant residual in the distribution system cannot be undetectable in more than 5 percent of the samples in a month, for any two consecutive months. A system may measure for HPC in lieu of disinfectant residual in the distribution system.

(4) Watershed control—to avoid filtration, systems must establish and maintain an effective watershed control program.

(5) On-site inspection requirements—to avoid filtration, a system must have an annual on-site inspection conducted by the state (or third party approved by the state) to demonstrate that the system is maintaining an adequate watershed control program and reliable disinfection treatment.

(6) Absence of waterborne disease outbreaks—to avoid filtration, a system cannot have been identified as a source of waterborne disease outbreak, or, if it has been, the system must have been modified sufficiently to prevent another outbreak.

(7) Compliance with the total coliform MCL—to avoid filtration, a system must comply with the total coliform rule requirements.

(8) Compliance with the total trihalomethane (TTHM) MCL—to avoid filtration, a system must comply with the TTHM regulation.

Analytical requirements. Except for ozone analyses, testing and sampling must be in accordance with *Standard Methods* (sixteenth edition) or methods approved by the USEPA for total coliforms, fecal coliform, turbidity, disinfectant residuals, temperature, and pH.²⁶ Residual disinfectant concentrations for ozone must be measured by the Indigo Method or automated methods that are calibrated in reference to the results obtained by the Indigo Method. Note that the comparable method in the seventeenth edition of *Standard Methods* should not be used for compliance monitoring unless the method is unchanged from the sixteenth edition or until the seventeenth edition version of the method is approved by USEPA.

Operator requirements. All systems using surface water or groundwater under the direct influence of surface water must have operators that meet qualifications specified by the state.

Compliance requirements. The rule establishes compliance requirements for all systems. A simplified compliance decision tree is shown in Figure 1.

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TABLE 13
Routine sampling requirements under the total coliform rule

Population Served	Minimum Number of Routine Samples per Month	Population Served	Minimum Number of Routine Samples per Month
25-1,000*	1	59,001-70,000	70
1,001-2,500	2	70,001-83,000	80
2,501-3,300	3	83,001-96,000	90
3,301-4,100	4	96,001-130,000	100
4,101-4,900	5	130,001-220,000	120
4,901-5,800	6	220,001-320,000	150
5,801-6,700	7	320,001-450,000	180
6,701-7,600	8	450,001-600,000	210
7,601-8,500	9	600,001-780,000	240
8,501-12,900	10	780,001-970,000	270
12,901-17,200	15	970,001-1,230,000	300
17,201-21,500	20	1,230,001-1,520,000	330
21,501-25,000	25	1,520,001-1,850,000	360
25,001-33,000	30	1,850,001-2,270,000	390
33,001-41,000	40	2,270,001-3,020,000	420
41,001-50,000	50	3,020,001-3,960,000	450
50,001-59,000	60	3,960,001 or more	480

*Includes public water systems that have at least 15 service connections but serve fewer than 25 people

TABLE 14
Monitoring and repeat-sample frequency after a total-coliform-positive routine sample

Number of Routine Samples per Month	Number of Repeat Samples*	Number of Routine Samples Next Month†
1 or less	4	5/month
2	3	5/month
3	3	5/month
4	3	5/month
5 or more	3	Table 13

*Number of repeat samples in the same month for each total-coliform-positive routine sample

†Except when state invalidates the original routine sample, substitutes an on-site evaluation of the problem, or waives the requirement on a case-by-case basis

The existing interim standard for turbidity will continue in effect for unfiltered systems until Dec. 30, 1991, and for filtered systems until June 29, 1993. If the state determines before Dec. 30, 1991, that an unfiltered system must filter, the system must comply with the interim standard for turbidity until June 29, 1993, or until filtration is installed, whichever is later.

States must set regulations necessary to implement this rule by Dec. 30, 1990. State rules must be at least as stringent as those set by USEPA. Before Dec. 30, 1991, each state must determine which systems will be required to filter. If filtration is required, it must be installed before June 29, 1993, unless the system is allowed an exemption by the state. If an exemption is granted, filtration must be installed by the date specified in the terms of the exemption. Monitoring and reporting requirements go into effect Dec. 30, 1990, for unfiltered systems, unless the state determines by then that filtration is required. All systems with filtration in place must meet the filtration criteria, disinfection criteria, and the monitoring and reporting requirements beginning June 29, 1993.

States must adopt procedures for determining whether a groundwater source is under the direct influence of surface water by Dec. 30, 1990. For each

system served by a groundwater source, the state must determine whether that source is under the direct influence of surface water. This determination must be made for community water systems by June 29, 1994, and for noncommunity systems by June 29, 1999.

A system using a groundwater under the direct influence of surface water must comply with the monitoring and reporting requirements of this rule beginning Dec. 30, 1991, or six months after the state determines that the groundwater is under the direct influence of surface water, whichever is later. Within 18 months of determining that a groundwater source is under the direct influence of surface water, the state must determine whether filtration is required.

Beginning Dec. 30, 1991, or 18 months after the state determines that a groundwater source is under the direct influence of surface water, whichever is later, the criteria for avoiding filtration and the requirements for unfiltered systems go into effect, unless the state has determined that filtration is required.

This means that a system using a groundwater source under the direct influence of surface water that fails to meet any one of the criteria for avoiding filtration after the relevant date must install filtration and comply with the

requirements for filtered systems June 29, 1993, or within 18 months of failure to meet any one of the criteria for avoiding filtration, whichever is later.

Public notification. All general public notification requirements, including the manner and frequency of notification, apply to violation of this rule. Mandatory language to be included in public notices for violations of the filtration and disinfection requirements of the rule is specified. Violations of treatment technique requirements are classified as tier 1 violations. Violations of testing procedures and monitoring requirements are classified as tier 2 violations. A waterborne disease outbreak in an unfiltered supply is designated as a tier 1, acute violation.

Variances and exemptions. No variances from the filtration and disinfection requirements of the rule are allowed. Exemptions are allowed for all requirements except disinfection residual requirements at the point of entry to the distribution system.

State flexibility. The SWTR allows some state flexibility in interpreting and implementing the provisions of the rule. State primacy agencies must be consulted to determine how the rule will be implemented. Particular areas in which state agencies have discretion include:

Determination of groundwater under the influence of surface water. As discussed in the preceding sections, states must establish criteria to be used to determine whether a groundwater source is under the direct influence of surface water. The state must make this determination for each groundwater source.

Turbidity monitoring. For systems using slow sand filtration or filtration technologies other than conventional treatment, direct filtration, or diatomaceous earth filtration, the state may reduce turbidity sampling frequency to once a day. The state may reduce monitoring to one grab sample a day for all systems serving fewer than 500 people.

Turbidity removal for conventional or direct filtration. The state may increase the 0.5-ntu turbidity limit up to less than 1 ntu in ≥ 95 percent of the measurements, without any demonstration by the system, if the state determines that overall treatment with disinfection achieves at least 99.9 and 99.99 percent removal and inactivation of *Giardia* cysts and viruses, respectively.

Turbidity removal for slow sand filtration. The state may increase the 1-ntu turbidity limit (but at no time to exceed 5 ntu) if it determines that no significant interference with disinfection exists.

Turbidity limits for alternative filtration technologies. The state may increase the 1-ntu turbidity limit (but at no time to exceed 5 ntu) if it determines that there is no significant interference with disinfection.

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action requirements for filtered systems. The state defines the level of disinfection required, depending on technology and source water quality.

Alternative technology approval. States may approve alternative filtration and disinfection technologies demonstrated to achieve at least 99.9 percent and 99.99 percent removal or inactivation of *Giardia lamblia* cysts and viruses, respectively.

Criteria to avoid filtration. Some flexibility in interpreting the criteria to be met to avoid filtration is allowed. If the state determines that certain of the criteria established to avoid filtration were exceeded because of particular circumstances defined in the rule, the state may waive the requirement to install filtration.

Compliance issues. Compliance with the requirements of the SWTR will be

affected by state flexibility allowed in the rule and by each utility's situation. To assist water utilities and states in implementing the SWTR, USEPA has prepared a guidance manual²⁷ (available from the National Technical Information Service [NTIS], 5285 Port Royal Rd., Springfield, VA 22161; 1-800-336-4700).*

Systems that use a surface water

*AWWA has obtained permission to reprint the guidance manual, which should be available in mid-1990.

TABLE 15
Proposed lead and copper regulation

I. Source Water Requirements

A. Sampling

1. Lead and copper concentrations to meet the following MCLs—

Lead: 0.005 mg/L

Copper: 1.3 mg/L

2. Monitoring requirements are based on system size and water source

Population Served by System	Water Source	Number of Samples	Monitoring (Number of Months After Publication of Final Regulation)	
			Begin By	Complete By
Less than 500	Ground, surface	1 per year	27	39
	Ground	1 per year	15	27
500-3,300	Surface	1 per quarter	15	27
	Ground	1 per year	3	15
	Surface	1 per quarter	3	15

3. Samples must be taken at entry points to the distribution system from each source and after any treatment. Individual states will have discretion to allow composite samples or use of a representative well in a well field.

4. Compliance is based on the results of each analysis. If one result exceeds the MCL, the system is out of compliance.

B. Treatment

1. Achieving compliance may mean using costly treatment processes, such as reverse osmosis, or changing sources.

II. Corrosion of Pipes and Household Plumbing

A. Sampling

1. Identify pool of residences most likely to have high lead levels for sampling. Residences must be at the ends of the distribution system.

Each residence must have

- lead solder less than five years old in the plumbing or
- lead service connections or lead plumbing.

2. Sampling pool must have at least 50 percent more sites than required for monitoring. For example, if 50 samples are required, 75 homes would have to be identified.

3. Monitoring requirements are based on system size.

Population Served by System	Number of Samples	Monitoring (Number of Months After Publication of Final Regulation)	
		Begin By	Complete By
Less than 500	10 in 1 year every 5 years*	27	39
500-3,300	10 in 1 year every 2 years*	15	27
3,301-10,000	20 per quarter†	3	15
10,001-100,000	30 per quarter†	3	15
More than 100,000	50 per quarter†	3	15

*Must be taken during June, July, and August

†Can be reduced to one sample set each year; taken during June, July, and August if no-action levels are achieved

4. Samples must be at least one litre in volume and collected from a cold-water kitchen tap. Samples must represent water that has stood in the service line and plumbing for 8-18 hours.

5. No-action levels

a. Based on the sample results for one year, a water system is in compliance and will take no action if

- the average lead level is less than or equal to 0.010 mg/L,
- no more than 5 percent of the samples contain more than 1.3 mg/L of copper, and
- no more than 5 percent of the samples have a pH less than 8.

B. Treatment

1. Some form of treatment would be required to control corrosion in pipes and household plumbing if any of the no-action levels are not achieved.

2. A water system that fails to meet any of the no-action levels must submit a treatment plan to the state within one year. This plan must outline the steps the utility will take and a schedule it will follow to provide corrosion control treatment, including pilot studies and final installation of equipment.

C. Public education

1. As part of the treatment plan, a water system must also develop a public education program to inform its customers about lead in drinking water if

- the average lead level exceeds 0.010 mg/L or
- more than 5 percent of the samples have more than 0.020 mg/L of lead.

2. The public education program must be approved by the state for content and for the way in which the program will be delivered.

3. Systems serving more than 10,000 people are required to conduct an evaluation of the public education program.

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TABLE 16
Proposed MCLGs and MCLs for SOCs and IOCs (Phase II)

Contaminant	Drinking Water Health Effects	Proposed MCLG mg/L	Current MCL mg/L	Proposed MCL mg/L	Sources
Inorganics					
Asbestos	Benign tumors	7 million fibers/L*		7 million fibers/L*	Geological, asbestos-cement
Barium	Circulatory system effects	5	1	5	Geological
Cadmium	Kidney effects	0.005	0.01	0.005	Geological, mining, smelting, and corrosion of galvanized pipe
Chromium	Gastrointestinal effects	0.1	0.05	0.1	Geological
Mercury	Kidney effects	0.002	0.002	0.002	Used in manufacture of paint, paper, vinyl chloride; used in fungicides; geological
Nitrate†	Methemoglobinemia ("blue baby" syndrome)	10 (as Nitrogen)	10 (as Nitrogen)	10 (as Nitrogen)	Fertilizer, sewage, feedlots
Nitrite†	Methemoglobinemia ("blue baby" syndrome)	1 (as Nitrogen)		1 (as Nitrogen)	Fertilizer, sewage, feedlots
Selenium	Neurological effects	0.05	0.01	0.05	Geological, mining
Volatile organics (solvents)					
<i>cis</i> -1,2-Dichloroethylene	Nervous system, liver, kidney	0.07		0.07	Extraction solvent, dyes, perfumes, pharmaceuticals, lacquers
1,2-Dichloropropane	Liver, toxin, lung, and kidney effects	0		0.005	Pesticide, solvent
Ethylbenzene	Liver, kidney effects	0.7		0.7	Manufacture of styrene
Monochlorobenzene	Respiratory, nervous system, liver, kidney effects	0.1		0.1	Solvent, pesticide
<i>o</i> -Dichlorobenzene	Nervous system, lung, liver, kidney effects	0.6		0.6	Industrial solvent, pesticide
Styrene	Possible cancer, liver, central nervous system effects	0/0.1‡		0.005/0.1‡	Manufacture of polystyrene plastic
Tetrachloroethylene	Probable cancer	0		0.005	Dry-cleaning solvent
Toluene	Nervous system, lung, liver effects	2		2	Solvent, gasoline additive
<i>trans</i> -1,2-Dichloroethylene	Nervous system, liver, kidney effects	0.1		0.1	Extraction solvent, dyes, perfumes, pharmaceuticals, lacquers
Xylenes (total)	Central nervous system effects	10		10	Solvent; used to manufacture paint, dyes, adhesives, detergents, fuel additive

*Longer than 10 μm

†Total nitrate plus nitrate MCLG and MCL = 10 mg/L (as nitrogen).

‡USEPA proposes a dual MCLG-MCL for styrene. After public comment, a single MCLG and MCL will be set.

§Treatment technique requirement limits the amount of the chemical used to treat drinking water.

source or groundwater source under the direct influence of surface water and that do not currently disinfect must install disinfection treatment. These systems may also be required to install filtration unless the criteria for avoiding filtration are met following installation of disinfection treatment. During evaluation of a system to determine what type of treatment is required, the state may determine that interim measures are needed to reduce health risks. Interim measures might include a boil-water notice or the use of bottled water.

Systems that practice only disinfection could attempt to meet the requirements for avoiding filtration. Systems that do not meet one or more of the requirements for avoiding filtration must filter. During the period prior to installation of filtration, the state may require interim measures to reduce health risks, such as

maintaining more stringent disinfection conditions until filtration is installed.

Water distribution systems that currently filter and disinfect must meet the treatment criteria in the rule. If the criteria cannot be met using current treatment practice, an upgrade in water treatment will be necessary.

Total coliform rule

The 1986 SDWA amendments included total coliform on the list of 83 contaminants that USEPA must regulate. USEPA developed a proposed rule for total coliform, which was published Nov. 3, 1987.²⁸ Additional regulatory options were published in the *Federal Register* May 6, 1988,²⁹ and the final rule was promulgated June 29, 1989.³⁰

Major provisions. The revised rule set an MCLG for total coliforms (including fecal coliform and *E. coli*) at zero and an

MCL based on the presence-absence (P-A) of total coliforms. The basis of the new MCL represents a major change in approach from the current rule, which estimates coliform density.

The MCL for water distribution systems analyzing at least 40 samples per month is that no more than 5.0 percent of the monthly samples may be positive for total coliform. The MCL for water distribution systems analyzing less than 40 samples per month is that no more than 1 sample per month may be positive for total coliform.

Under the current rule, no one positive sample can cause a violation. Because the new rule is based on presence or absence, one positive sample can cause a system to be in violation, if that positive sample is followed by a positive sample or if that sample brings the total percent positive to greater than the MCL. In

TABLE 16, continued
Proposed MCLGs and MCLs for SQCs and IOCs (Phase II)

Contaminant	Drinking Water Health Effects	Proposed MCLG mg/L	Current MCL mg/L	Proposed MCL mg/L	Sources
Pesticides, herbicides, PCBs					
Alachlor	Probable cancer	0		0.002	Herbicide
Aldicarb	Nervous system toxicity	0.01		0.01	Pesticide, herbicide; restricted in some areas
Aldicarb sulfone	Nervous system toxicity	0.01		0.01	Pesticide, herbicide; restricted in some areas
Aldicarb sulfoxide	Nervous system toxicity	0.04		0.04	Pesticide, herbicide; restricted in some areas
Atrazine	Nervous system, liver, heart effects	0.003		0.003	Herbicide
Carbofuran	Nervous system, reproductive effects	0.04		0.04	Pesticide, herbicide
Chlordane	Nervous system, liver effects	0		0.002	Pesticide, herbicide; most uses banned in 1980
Dibromochloropropane (DBCP)	Probable cancer	0		0.0002	Pesticide; canceled in 1977
2,4-D	Liver, kidney effects	0.07	0.1	0.07	Herbicide
Ethylene dibromide (EDB)	Probable cancer	0		0.0005	Gasoline additive, soil fumigant, solvent; most pesticide uses restricted in 1984
Heptachlor	Probable cancer	0		0.0004	Insecticide; most uses restricted in 1983
Heptachlor epoxide	Probable cancer	0		0.0002	Insecticide; most uses restricted in 1983
Lindane	Neurological, liver, kidney effects	0.0002	0.004	0.0002	Insecticide to control fleas, lice, ticks; some uses restricted in 1983
Methoxychlor	Central nervous system effects	0.4	0.1	0.4	Insecticide
PCBs	Probable cancer, reproductive effects	0		0.0005	Transformers, capacitors; production banned in 1977
Pentachlorophenol	Organ, central nervous system, fetal effects	0.2		0.2	Wood preservative; nonwood uses banned in 1987
Toxaphene	Probable cancer	0	0.005	0.005	Pesticide, herbicide; most uses canceled in 1977
2,4,5-TP (Silvex)	Liver, kidney effects	0.05	0.01	0.05	Herbicide; canceled in 1983
Drinking water treatment chemicals					
Acrylamide	Probable cancer	0		Treatment technique§	Water treatment chemicals (polymers)
Epichlorohydrin	Probable cancer	0		Treatment technique§	Water treatment chemicals (polymers)

addition, the new rule does not allow substitution of chlorine residual monitoring as does the current rule.

Monitoring requirements. All public water systems must sample according to a written sample-siting plan. The plan is subject to review and revision by the state, according to a process to be established by the state that ensures the adequacy of the plan.

Monthly routine monitoring requirements are based on population served (Table 13). States may specify a sampling frequency of less than one per month for noncommunity water systems using groundwater and serving 1,000 people or less until a sanitary survey is conducted. Thereafter, noncommunity water systems using groundwater and serving 1,000 people or less must monitor in each calendar quarter during which the system provides water to the public, unless

the state determines that another frequency is more appropriate. After June 29, 1994, noncommunity water systems using groundwater and serving 1,000 people or less must monitor at least once a year.

Noncommunity water systems using surface water or groundwater under the direct influence of surface water, regardless of the number of people served, must monitor at the same frequency as a like-sized community water system. A noncommunity water system using groundwater and serving more than 1,000 people during any month must monitor at the same frequency as a like-sized community water system. The state may, however, reduce the monitoring frequency for any month the system serves 1,000 people or less.

For a community water system serving 25 to 1,000 people, the state may reduce

the sampling frequency if a sanitary survey conducted within the last five years indicates that the system is supplied solely by a protected groundwater source and is free of sanitary defects. The sampling frequency, however, may not be reduced to less than once a quarter.

Repeat sample monitoring requirements under the new rule are extensive (Table 14). For each routine sample that tests positive for total coliform, a set of three or four repeat samples must be analyzed for total coliforms. At least one repeat sample in the set must be from the same tap as the original sample. Two repeat samples in the set must be collected from within five service connections of the original sample, one upstream and one downstream. Repeat samples must be collected within 24 hours of notification of the original result, except when the state waives this

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irement on a case-by-case purpose of repeat sampling determine whether the original positive sample is indicative of system contamination or a domestic or nondistribution system problem. If the problem is domestic or nondistribution system in nature, the state can invalidate the sample for compliance calculation purposes.

If total coliforms are detected in any repeat sample, the utility must collect another set of repeat samples, as before,

unless the MCL has been violated and the utility has notified the state. In these cases, the state may reduce or eliminate the repeat-sampling requirement for the remainder of the month because the utility has already incurred a violation.

If a utility that routinely collects less than five routine samples per month detects total coliforms in any routine or repeat sample and the sample is not invalidated by the state, it must collect a set of five routine samples the next

If the system provides water to public, as shown in Table 14. The state may waive this requirement if either of two state actions occurs. The state can (1) perform a site visit to evaluate the contamination problem or (2) the state can determine why the sample was positive, explain this conclusion in writing, obtain the signature of the supervisor of the state official who draws this conclusion, make the documentation available to USEPA and the public, and

TABLE 17
Proposed (SOC-IOC) monitoring requirements for community systems

Contaminant	Vulnerability Assessment Required	Nonvulnerable Source		Vulnerable Source	
		Surface Water	Groundwater	Surface Water	Groundwater
Inorganics					
Barium	No	Initial: annually	Initial: every three years	Not applicable	Not applicable
Cadmium	No	Repeat: minimum of every 10 years after three rounds completed	Repeat: minimum of every 10 years after three rounds completed and all results <50 percent of MCL	Not applicable	Not applicable
Chromium	No				
Mercury	No				
Selenium	No				
Asbestos	Yes, for initial sampling	No monitoring required if initial result is \geq 50 percent of MCL	No monitoring required	Initial: one time Repeat: annually if initial result is \geq 50 percent of MCL	Initial: one time Repeat: every three years if initial result is \geq 50 percent of MCL
Nitrate-Nitrite	No	Quarterly (reduced to annually if concentration is <50 percent of MCL)	Annually (quarterly if concentration is \geq 50 percent of MCL)	Not applicable	Not applicable
Synthetic organics					
VOCs					
<i>cis</i> -1,2-Dichloroethylene	Yes, for repeat frequency	Initial: quarterly for one year	Initial: quarterly for one year	Initial: quarterly for one year	Initial: quarterly for one year
<i>trans</i> -1,2-Dichloroethylene		Repeat: VOCs detected†—quarterly VOCs not detected—state discretion	Repeat: VOCs detected†—quarterly VOCs not detected—five years	Repeat: VOCs detected†—quarterly VOCs not detected—>500 connections—every three years; \leq 500 connections—every five years	Repeat: VOCs detected†—quarterly VOCs not detected—>500 connections—every three years; \leq 500 connections—every five years
1,2-Dichloropropane					
<i>o</i> -Dichlorobenzene					
Ethylbenzene					
Monochlorobenzene					
Styrene					
Tetrachloroethylene					
Toluene					
Xylenes (total)					
Pesticides, herbicides, PCBs					
Alachlor	Yes, for initial sampling	No monitoring required	No monitoring required	Initial: quarterly for one year	Initial: quarterly for one year
Aldicarb				Repeat: Detected†—>500 connections—quarterly; \leq 500 connections—annually Not detected—>500 connections—four quarterly samples every three years; \leq 500 connections—four quarterly samples every five years	Repeat: Detected†—>500 connections—quarterly; \leq 500 connections—annually Not detected—>500 connections—four quarterly samples every three years; \leq 500 connections—four quarterly samples every five years
Aldicarb sulfone					
Aldicarb sulfoxide					
Atrazine					
Carbofuran					
Chlordane					
Dibromochloropropane					
2,4-D					
Ethylene dibromide					
Heptachlor					
Heptachlor epoxide					
Lindane					
Methoxychlor					
PCBs					
Pentachlorophenol					
Toxaphene					
2,4,5-TP (Silvex)					
Additional contaminants					
6 IOCs	Yes	No requirement	No requirement	One time only	One time only
23 SOCs	Yes	No requirement	No requirement	Four quarterly samples for one year	Four quarterly samples for one year
84 SOCs	No	No requirement	No requirement	State discretion	State discretion

NOTE: This table is a summary of the proposed monitoring requirements. Consult the proposed rule for a full description of requirements.
 *Based on vulnerability assessment
 †Detected = 0.0005 mg/L
 ‡Detected = method detection limit (MDL) as defined by USEPA

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the system to collect at least one sample as described in the rule.

Unfiltered surface water systems or systems using unfiltered groundwater under the direct influence of surface water must analyze one coliform sample each day the turbidity source water exceeds 1 ntu.

Analytical requirements. A 100-mL standard sample volume must be used in analyzing for total coliforms, regardless of the analytical method. Total coliform analyses may be conducted using the 10-tube multiple tube fermentation (MTF) technique, the membrane filter (MF) technique, the P-A coliform test, or the minimal media ONPG-MUG test (known commercially as the Colilert test).^{30,31} The five-tube MTF technique (20-mL sample portions) or a single culture bottle containing MTF medium may also be used if a 100-mL water sample is used in the analysis.

Invalidation of positive samples. All positive total coliform samples count in compliance calculations, except for samples that are invalidated by the state. Invalidated samples, however, do not count toward the minimum monitoring frequency. States may invalidate samples only under three conditions:

(1) the analytical laboratory acknowledges that improper sample analysis caused the positive result,

(2) the system determines that the contamination is a domestic or other nondistribution system plumbing problem on the basis that any repeat sample taken at the same tap as the original positive sample is positive but all repeat samples at nearby sampling locations are negative, or

(3) the state has substantial grounds to believe that the positive result is because of some circumstance or condition not related to the quality of drinking water in the distribution system.

Because the distribution of coliform bacteria in the distribution system is not uniform, repeat samples alone are not adequate to determine the validity of a total-coliform-positive sample. States may not invalidate a total-coliform sample solely because a subsequent sample taken at the same site or nearby taps or service connections is total-coliform negative. The preceding condition 2 requires the state to determine whether or not the problem is in the distribution system as the basis of sample invalidation. States cannot invalidate a total-coliform-positive sample solely on the grounds that all repeat samples are coliform-negative. Whenever a total-coliform-positive sample is invalidated, the state must provide written documentation that includes the specific cause of the total-coliform-positive sample and that outlines what action the system has taken or will take in order to correct the problem.

Variations and exemptions. The total coliform rule does not allow for variations or exemptions.

Sanitary surveys. Periodic sanitary surveys are required for all systems that collect less than five samples per month.

Initial sanitary surveys must be completed for community and noncommunity water systems by June 29, 1994, and June 29, 1999, respectively. Following the initial survey, subsequent surveys are required every five years for all

TABLE 18
Initial sampling requirements under the proposed SOC-IOC rule (Phase II)

Contaminant	Population Served	Sampling Completed (Months after regulation is published in final form)
IOCs (except asbestos)	All sizes	18
Asbestos	All sizes (if vulnerable)	60
VOCs	>10,000 people	18
	3,300-10,000 people	30
	<3,300 people	54
Pesticides, herbicides, and PCBs	All sizes (if vulnerable)	48
Additional (see Table 16)	All sizes (if vulnerable)	48

TABLE 19
BATs specified under the proposed SOC-IOC (Phase II) rule

Chemical	Treatment Technique		
	Granular Activated Carbon	Packed-Tower Aeration	Polymer Addition Practices
Acrylamide			X
Alachlor	X		
Aldicarb	X		
Aldicarb sulfone	X		
Aldicarb sulfoxide	X		
Atrazine	X		
Carbofuran	X		
Chlordane	X		
2,4-D	X		
Dibromochloropropane (DBCP)	X	X	
<i>o</i> -Dichlorobenzene	X	X	
<i>cis</i> -1,2-Dichloroethylene	X	X	
<i>trans</i> -1,2-Dichloroethylene	X	X	
1,2-Dichloropropane	X	X	
Epichlorohydrin			X
Ethylene dibromide (EDB)	X	X	
Ethylbenzene	X	X	
Heptachlor	X		
Heptachlor epoxide	X		
Lindane	X		
Methoxychlor	X		
Monochlorobenzene	X	X	
PCBs	X		
Pentachlorophenol	X		
Styrene	X	X	
2,4,5-TP (Silvex)	X		
Tetrachloroethylene	X	X	
Toluene	X	X	
Toxaphene	X		
Xylenes (total)	X	X	

Inorganics			
Chemical	Treatment Technique	Chemical	Treatment Technique
Asbestos	Coagulation-filtration Direct and diatomite filtration Corrosion control	Mercury	Granular activated carbon Coagulation-filtration* Lime softening Reverse osmosis*
Barium	Ion exchange Lime softening Reverse osmosis	Nitrate-nitrite	Ion exchange Reverse osmosis
Cadmium	Ion exchange Reverse osmosis Coagulation-filtration	Selenium	Activated alumina Lime softening Coagulation-filtration (selenium IV only) Reverse osmosis
Chromium	Lime softening Coagulation-filtration Ion exchange Lime softening (chromium III only) Reverse osmosis		

*Mercury influent concentrations $\leq 10 \mu\text{g/L}$

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TABLE 20
Additional contaminants required to be monitored under the proposed
SOC-IOC rule (Phase II)

Priority I Contaminants	Priority II Contaminants	
Organics	Ametryn	Ethion
Aldrin	Aspon	Ethoprop
Butachlor	Atraton	Ethylparathion
Carbaryl	Azinphos methyl	Etridiazole
2,4-DB	BCH-alpha	Famphur
Dalapon	BCH-beta	Fenamiphos
Dicamba	BCH-delta	Fenarimol
Dieldrin	BCH-gamma	Fenitrothion
Dinoseb	Bolstar	Fensulfothion
Hexachlorobenzene	Bromacil	Fenthion
Glyphosphate	Butylate	Fluridone
Hexachlorocyclopentadiene	Carboxin	Fonofos
3-Hydroxybarbofuran	Chlorneb	Hexazinone
Methomyl	Chlorobenzilate	Malathion
Metribuzin	Chloroprotham	Merphos
Oxamyl (vydate)	Chloropropylate	Methyl paraoxon
PAHs	Chlorothalonil	Methyl parathion
Phthalates	Chloropyrifos	Mevinphos
Picloram	Coumophas	MGK 264
Simazine	Cycloate	MGK 326
2,3,7,8-TCDD (Dioxin)	DCPA	Molinat
2,4,5-T	4,4'-DDD	Napropamide
Inorganics	4,4'-DDE	Norflurazon
Antimony	4,4'-DDT	Pebulate
Beryllium	Demeton-O	cis-Permethrin
Cyanide	Demeton-S	trans-Permethrin
Nickel	Diazinon	Phorate
Sulfate	Dichlofenthion	Phosmet
Thallium	Dichloran	Prometon
	Dichlorvos	Prometryn
	Diphenamid	Pronamide
	Diquat	Propazine
	Disulfoton	Simetryn
	Disulfoton sulfone	Stirofos
	Disulfoton sulfoxide	Tebuthiuron
	EPN	Terbacil
	EPTC	Terbufos
	Endosulfan I	Terbutryn
	Endosulfan II	Triademefon
	Endosulfan sulfate	Tricyclazole
	Endothall	Trifluralin
	Endrin aldehyde	Vernolate

TABLE 21
Tentative MCLGs and MCLs for Phase V SOCs and IOCs
(released by USEPA prior to proposal)

Contaminants	MCLG mg/L	MCL mg/L
Organics		
Dalapon	0.2	0.2
Di(ethylhexyl)adipate	0.5	0.5
Di(ethylhexyl)phthalate	zero	0.004
Dichloromethane (methylene chloride)	zero	0.005
Dinoseb	0.007	0.007
Diquat	0.02	0.02
Endothall	0.1	0.1
Endrin	0.002	0.002
Glyphosate	0.7	0.7
Hexachlorobenzene	zero	0.001
Hexachlorocyclopentadiene	0.05	0.05
Oxamyl (vydate)	0.2	0.2
PAHs [Benzo(a)pyrene]*	zero	0.0002
Picloram	0.5	0.5
Simazine	0.001	0.001
1,2,4-Trichlorobenzene	0.009	0.009
1,1,2-Trichloroethane	0.003	0.005
2,3,7,8-TCDD (Dioxin)	zero	5 x 10 ⁻⁸
Inorganics		
Antimony	0.003	0.01/0.005†
Beryllium	zero	0.001
Cyanide	0.2	0.2
Nickel	0.1	0.1
Sulfate	400	400
Thallium	0.0005	0.002/0.001†

*USEPA is considering establishment of MCLGs and MCLs for six additional PAHs classified as probable human carcinogens: benz(a)anthracene, benzo(b)fluoranthene, benzo(k)-fluoranthene, chrysene, dibenz(a,h)anthracene, and indenopyrene.

†USEPA is considering proposing two MCLs based on five or 10 times the minimum detection limit.

ems except noncommunity water systems that use protected and disinfected groundwater, in which case sanitary surveys are required every 10 years.

Fecal coliforms, E. coli, and heterotrophic plate count. A fecal coliform analysis is required on each total-coliform-positive routine or repeat sample culture. Analysis for *E. coli* may be done in place of fecal coliform. If fecal coliform or *E. coli* is detected, notification of the state is required.

States may allow water systems, on a case-by-case basis, to forego fecal coliform or *E. coli* testing on samples positive for total coliform if the system treats every sample positive for total coliform as if it contained fecal coliforms. Also, state invalidation of the routine total-coliform-positive sample automatically invalidates a subsequent positive fecal coliform or *E. coli* result on that sample.

Heterotrophic bacteria can interfere with total coliform analyses. If any one of the following three situations occurs and total coliforms are not detected, the sample is invalid:

- (1) a turbid culture with no gas production using the MTF technique,
- (2) a turbid culture in the absence of an acid reaction using the P-A test, or
- (3) confluent growth or a colony number that is "too numerous to count" using the MF technique.

For each invalid sample, a system must take a replacement sample from the same location as the invalid sample within 24 hours of being notified of the result. If a sample has evidence of interference by heterotrophic bacteria (any one of the preceding three situations) but is positive for total coliform, the sample is considered valid.

Compliance requirements. If more than 5 percent of the monthly samples (routine plus repeats) test positive for total coliform for systems analyzing at least 40 samples per month, the system is out of compliance. If more than one sample per month tests positive for total coliform for systems analyzing less than forty samples per month, the system is out of compliance.

If a routine total-coliform-positive sample tests positive for fecal coliform or *E. coli*, the repeat sample is positive for total coliforms, and the original sample is not invalidated, the system is in violation of the MCL. In addition, if a routine total-coliform-positive sample tests negative for fecal coliform or *E. coli* and any repeat sample is negative for fecal coliform or *E. coli*, the system is in violation of the MCL. Both of these situations represent a tier 1, acute MCL violation that would trigger appropriate public notification (Table 7).

Compliance issues. All public water systems must meet the revised final coliform MCL and monitoring requirements 18 months after promulgation,

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Dec. 31, 1990. Current rules re-
 force until that date. (Utilities
 encouraged, however, to begin now to
 evaluate the effects of the rule on their
 operations and transition to P-A testing.)

Some water utilities have a concern
 that violation of the total coliform rule
 does not necessarily correspond to a
 demonstrable public health risk. AWWA
 filed a petition to review the rule in the
 US Court of Appeals for the District of
 Columbia and also requested USEPA to
 reconsider the rule.³² As of press time
 (December 1989), AWWA was negoti-
 ating with USEPA to ascertain whether
 a refinement of the rule that satisfies the
 industry's concerns while providing
 public health protection and appropriate
 public notification is feasible.

Lead and copper rule

Requirements to minimize lead and
 copper in drinking water were proposed
 Aug. 18, 1988.³³ When finalized, these
 regulations will affect all community
 water systems and nontransient, non-
 community water systems, regardless of
 size. The USEPA held three public hear-
 ings and received approximately 3,000
 comments on the proposed rule, includ-
 ing numerous inquiries from members
 of Congress. Publication of the final rule
 is scheduled for November 1990.

Major provisions. Key provisions of the
 proposed rule are summarized in Table
 15.³² The proposal includes a 0.005-mg/L
 lead MCL at the entry point to the
 distribution system. In addition, the
 proposal contains a treatment technique
 requirement that would mandate optimal
 corrosion control to minimize lead and
 copper as corrosion by-products as well
 as public education so consumers can
 reduce exposure. The treatment tech-
 nique would be triggered by various no-
 action levels. If these levels are met, no
 action would be required.

Compliance issues. Compliance issues
 surrounding this rule include the location
 at which monitoring should be required
 (i.e., tap or plant), the level at which the
 MCL should be set, and whether the rule
 should include mandatory lead-service-
 line replacement. The potential economic
 and legal effects of this rule on water
 utilities are significant.

A significant issue surrounding this
 rule is whether an MCL should be estab-
 lished at the consumer's tap. USEPA
 included in the proposed rule a lengthy
 discussion of why an MCL at the tap
 could not be proposed. The agency re-
 quested and received comments on the
 MCL-at-the-tap option—both for and
 against. A final decision on the regulatory
 approach has not been made, although
 USEPA is considering an MCL for lead
 at the tap. A lead level of 0.015 mg/L has
 been suggested as achievable, but the
 specific level has not yet been estab-
 lished. Because this issue was discussed

in the proposed rule, USEPA does not
 plan to repropose the rule if the MCL-at-
 the-tap option is adopted.

To assist utilities in implementation
 of this rule, USEPA is developing guid-
 ance manuals for corrosion control,³⁴
 public education, and monitoring. In
 addition, the AWWA Research Founda-
 tion (AWWARF) has prepared a guidance
 manual on lead control strategies.³⁵ This
 manual, scheduled to be available in
 1990, includes specific strategies and
 case studies to assist water utilities in
 controlling lead.

Synthetic organic and inorganic chemicals rule (Phase II)

USEPA proposed regulations for 30
 SOCs and 8 inorganic chemicals (IOCs)

22, 1989.³⁶ Most of the RMCLs to
 SOCs and IOCs proposed Nov. 13, 1985,³⁷
 were repropose as MCLGs May 22,
 1989,³⁶ along with corresponding MCLs.
 Some changes to the RMCLs proposed in
 1985, however, have been made in the
 current proposal based on updated health
 effects information. Public comment
 closed Aug. 21, 1989, and the final rule is
 scheduled for December 1990.

Major provisions. Table 16 lists the
 proposed MCLGs and MCLs for the 30
 SOCs and 8 IOCs. An MCLG and MCL
 for total nitrate plus nitrite of 10 mg/L is
 proposed, plus individual MCLGs and
 MCLs for them. Questions about the
 carcinogenic potential of styrene resulted
 in the proposal of two alternative MCLGs
 and MCLs. A single MCLG and MCL

TABLE 22
Candidate disinfectants and by-products for regulation under the D-DBP rule

Chlorination by-products
Chlorophenols
2-Chlorophenol
2,4-Dichlorophenol
2,4,6-Trichlorophenol
Cyanogen chloride
Haloacetic acids
Dibromoacetic acid
Dichloroacetic acid
Monobromoacetic acid
Monochloroacetic acid
Trichloroacetic acid
Haloacetonitriles
Bromochloroacetonitrile
Dibromoacetonitrile
Dichloroacetonitrile
Trichloroacetonitrile
Haloketones
1,1-Dichloropropanone
1,1,1-Trichloropropanone
MX [3-chloro-4-(Dichloromethyl)-5-hydroxy- 2(5H)furanone]
N-Organochloramines
Other
Chloral hydrate
Chloropicrin
Trihalomethanes
Bromodichloromethane
Bromoform
Chloroform
Dibromochloromethane
Disinfectants
Chloramine
Ammonia
Chlorine
Hypochlorite ion
Hypochlorous acid
Chlorine dioxide
Chlorate
Chlorite
Ozonation by-products
Inorganics
Bromate
Chlorate
Hydrogen peroxide
Iodate
Organics (major groups)
Aldehydes (formaldehyde, acetaldehyde, hexanol, and heptanal)
Bromine-substituted compounds
Epoxides
Ketones
N-Oxy compounds
Nitrosamines
Organic acids
Peroxides
Quinones (polyhydroxyphenols)

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be selected based on further research, health effects data and information received during the comment period.

The proposal includes revisions to existing NIPDWR MCLs for several contaminants. MCLs for barium, chromium, selenium methoxychlor, and 2,4,5-TP (Silvex) are proposed to be in-

creased. The MCLs for cadmium, 2,4-D, and lindane are proposed to be decreased. In addition, removing silver from the primary regulations and placing it on the list of secondary regulations has been proposed.

Treatment techniques are proposed for acrylamide and epichlorohydrin be-

cause of the lack of reliable analytical methods. These compounds are impurities found in certain water treatment chemicals, such as coagulant aids. Each public water system would have to certify annually that the chemicals it uses do not exceed specified levels based on dosage and percentage of the compound in the coagulant aid or other chemical.

Monitoring requirements. Proposed monitoring requirements for community systems are summarized in Table 17. Vulnerability assessments, conducted by the state, play a key role in determining the frequency of monitoring for SOCs and asbestos. Assessments are intended to determine the likelihood that a water system might be subject to contamination from SOCs or asbestos. Vulnerability analyses are to be completed by the states within 18 months after the final regulation is published.

Monitoring frequency varies depending on system size and whether contaminants are detected during initial sampling. For asbestos, nitrate, and nitrite, monitoring frequency depends on the percentage of contaminant detected compared with the MCL. Samples for nitrate, nitrite, herbicides, pesticides, and polychlorinated biphenyls (PCBs) must be taken during periods when the likelihood of contamination is highest. Initial sampling must be completed according to the schedule proposed in Table 18.

BAT. Specified BATs for the contaminants included in the proposed rule are listed in Table 19. GAC adsorption and packed-tower stripping are designated in the rule as BAT for SOCs. As mentioned earlier, GAC adsorption was specified as BAT for SOCs in the 1986 SDWA amendments.

Compliance requirements. Compliance is based on an annual running average for each sample point for systems monitoring quarterly or more frequently. For systems monitoring annually or less frequently, compliance is based on a single sample unless the state requests a confirmation sample. For nitrate and nitrite, if the first sample exceeds the MCL, another sample is required within 24 hours. Compliance is based on the average of the two samples.

Additional contaminant monitoring. Monitoring for 113 additional contaminants is proposed by USEPA (Table 20). Monitoring for 29 contaminants (designated priority 1 contaminants) would be determined by a vulnerability analysis conducted by the state. Monitoring for the remaining 84 priority 2 contaminants is at the discretion of the state. Water systems required to monitor must complete monitoring within four years after publication of the final rule.

SMCLs. Proposed SMCLs are included in Table 3. The proposed SMCLs for the organic chemicals are lower than the

TABLE 23
Key points of the D-DBP strawman rule

- A. MCLGs and MCLs to be set for selected contaminants and disinfectants:
1. Most likely
 - a. Total trihalomethanes (TTHMs)
 - b. Haloacetic acids
 - c. Chloride dioxide, chlorite, chlorate
 - d. Chlorine and chloramine
 2. Potential additional contaminants
 - a. Chloropicrin
 - b. Cyanogen chloride
 - c. Hydrogen peroxide, bromate, iodate
 - d. Formaldehyde
 3. MCL for TTHM of 50 or 25 µg/L
 4. Other MCLs based on analyses of feasibility similar to those conducted for TTHMs
- B. Treatment technique requirements or guidance provided for selected surrogate parameters:
1. MX (as a surrogate for mutagenicity)
 2. Total oxidizing substances (as a surrogate for organic peroxides and epoxides)
 3. Assimilable organic carbon (AOC) (as a surrogate for microbiological quality of oxidized waters)
- C. Monitoring required based on treatment:

Treatment Process	Monitoring Parameters Under Consideration
Chlorination	TTHMs Haloacetic acids Total organic halides Total oxidizing substances Chloropicrin Cyanogen chloride Total chlorine residual
Chloramination	TTHMs Chloropicrin Cyanogen chloride Total chloramine residual
Chlorine dioxide	Total oxidizing substances Chlorine dioxide Chlorite Chlorate
Ozonation	Formaldehyde Total oxidizing substances Bromate Iodate Hydrogen peroxide

NOTE: Consideration is being given to possibly reducing monitoring requirements to one sample per quarter at system discretion or one per year at state discretion based on system history.

- D. BAT established
1. Precursor removal techniques (50 percent removal of TTHM formation potential)
 - a. Conventional treatment modifications
 - b. GAC adsorption with up to 30 minutes' empty bed contact time and regeneration every 3 months
 - c. GAC adsorption is not universally feasible because of water quality conditions.
 - d. Membrane processes may not be BAT because of lack of full-scale experiences.
 2. Alternative oxidants
 - a. MCL values for disinfectants must be met.
 - b. Chlorine dioxide with chlorite residual removal and chloramines
 - c. Ozone plus chloramines
 - d. Initial estimate is that a TTHM MCL of 25 µg/L is the lowest that allows continued use of free chlorine.
 3. By-product removal
 - a. Stripping (possible for some contaminants)
 - b. GAC adsorption (not for most chlorination by-products; effectiveness for ozone by-products unknown)
 - c. Reducing agents for MX, total oxidizing substances, possible chloropicrin and cyanogen chloride
 - d. Reducing agents or free chlorine for hydrogen peroxide
 - e. Caveat regarding ozone use with possible future need for post-GAC adsorption treatment for controlling AOC or removal of other by-products.

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re e MCLs because the contaminants cause tastes or odors in water at the lower levels. This point is significant because in some states SMCLs are enforceable regulations.

Compliance issues. The proposed SOC-IOC (Phase II) rule becomes effective 18 months after the regulation is published in its final form. The final rule is currently scheduled for January 1991.

The proposed rule gives states flexibility to determine whether a public water system is vulnerable to pesticide contamination. USEPA solicited comments on an alternative approach that would assume all utilities to be vulnerable until sufficient monitoring by the supplier proves otherwise. The alternative approach would lessen the work load for state programs because vulnerability assessments would not be required, but monitoring requirements for water suppliers would be greater. In either case, the rule will place an increased burden on laboratory capabilities.

SOCs and IOCs (Phase V)

The Phase V rule will set regulations for 24 of the last 25 contaminants of the 83 mandated for regulation by the SDWA. The final statutory deadline for this regulation was June 19, 1989, but the current schedule calls for publishing of the proposed rule by June 1990. The final rule is scheduled for March 1992.

Major provisions. USEPA has released tentative MCLGs and MCLs for the 18 SOC and 6 IOC currently scheduled for inclusion in the rule (Table 21).³⁸ An SMCL for hexachlorocyclopentadiene is also being considered (Table 3). Arsenic, originally included on the Phase V list, was removed because of unresolved issues concerning its carcinogenicity classification, and it will be regulated separately.

Compliance issues. Compliance issues for the Phase V SOC-IOC rule will parallel the Phase II SOC-IOC rule issues. Of particular concern with Phase V is the lack of occurrence data for many of these contaminants. USEPA is constrained by the language of the SDWA as amended to regulate the contaminants listed, regardless of occurrence. Compliance monitoring will likely be required at some minimum frequency. Note that many of the organic contaminants listed are included as additional contaminants for monitoring under the VOC rule (Phase I) and SOC-IOC rule (Phase II).

Radionuclide rule (Phase III)

An ANPRM for radionuclides was originally published Oct. 5, 1983,⁷ and a second ANPRM was published Sept. 30, 1986.³⁹ A proposed rule is scheduled for September 1990 and the final rule for June 1992.

Major provisions. The radionuclide rule will establish MCLGs and MCLs for

ion-222, radium-226, radium-228, natural uranium, and beta particle and photon emitters. All of the radionuclides are classified as known human carcinogens, and MCLGs will be set at zero. Noncancerous effects of natural uranium are also of concern and an MCLG between 20 and 40 pCi/L is being considered.⁴⁰ MCLs currently (December 1989) being considered are⁴⁰

- radon—200 to 2,000 pCi/L,
- radium-226—5 pCi/L,
- radium-228—5 pCi/L,
- uranium—20 to 40 pCi/L, and
- beta particle and photon emitters—4 mrem.

As with other rules, the proposed regulation will include monitoring requirements, designation of BAT, public notification requirements, and variance and exemption criteria, if allowed. Public education will likely be included in the proposed rule.

Compliance issues. A variety of compliance issues will be raised once MCLGs and MCLs are officially proposed. The radon rule will be particularly significant because it could affect up to 30,000 groundwater supplies, depending on the MCL level that is determined. Monitoring, BAT, and particularly waste disposal will be addressed for all of the radionuclides included in the rule.

Disinfection-disinfection by-products rule (Phase VIa)

The disinfection-disinfection by-product (D-DBP) rule satisfies several requirements of the 1986 SDWA amendments. The amendments require USEPA to regulate 25 additional contaminants, beyond the original 83, every three years beginning in 1991. Candidate contaminants for regulation are to be taken from the DWPL, which includes disinfectants and a variety of DBPs. Contaminants regulated under the D-DBP rule will satisfy a portion of the regulatory requirement. The balance of the 25 contaminants required to be regulated will be covered in a separate rule, to be known as Phase VI.

Section 1412(b)(8) requires USEPA to set mandatory disinfection regulations for all public water systems. Disinfection of surface water is covered in the SWTR. The agency will include mandatory disinfection requirements for groundwater in the D-DBP rule.

Agency activity on this rule began in the spring of 1989. USEPA developed a strawman proposal outlining its initial thinking on the rule. The strawman proposal,⁴¹ dated Sept. 22, 1989, was first presented to the Science Advisory Board October 11 and was the subject of a public workshop December 4. The D-DBP rule is expected to be proposed in late 1991 and promulgated in 1993.

Strawman D-DBP rule. USEPA developed the strawman rule to serve as a

baseline discussion and to seek input from the affected parties early in the rule-making process. A working list of disinfectants, chlorination by-products, and ozonation by-products has been developed (Table 22). MCLs or treatment technique requirements could be established for some or all of the contaminants listed. USEPA has tentatively determined that the most cost-effective regulatory approach would be to set MCLs for a few contaminants that would serve as surrogates of the overall chemical safety of the water, similar to the existing TTHM standard methodology.

Key elements of the D-DBP strawman rule are summarized in Table 23. Because full support documentation is not available, the information in the rule is limited. For example, draft MCLGs have been calculated for most contaminants, but health effects information for some is incomplete. MCLG numbers were not available for discussion. A number of health, occurrence, analytical, and treatment issues are unresolved.⁴¹

The major thrust of the D-DBP rule will be monitoring requirements and MCLs designed to reduce human exposure to disinfectants and their by-products. This will be done by changing water treatment practice. Although not included in USEPA's strawman proposal, regulations governing disinfection of groundwater will also be included in the rule, with variances allowed for good-quality source waters.

Compliance issues. The D-DBP rule will likely be the most complex regulation. USEPA is welcoming participation in formulation of the rule and AWWA's D-DBP Technical Advisory Workgroup is actively involved.⁴²

An important compliance consideration with the D-DBP rule will be how it interfaces with other rules. For example, the SWTR includes CT values, turbidity requirements, and minimum disinfectant residual requirements. The proposed lead and copper rule included pH adjustment to >8, which favors TTHM formation. For free chlorine, higher CT values are required at higher pH values to achieve equivalent disinfection. In addition, water utilities will be required to meet the mandatory disinfection requirements and the total coliform rule while at the same time meeting restrictions placed on disinfectant application by the D-DBP rule.

Planning for compliance

The stream of new drinking water quality regulations necessitates short- and long-term planning by water utilities for compliance. Some rules are in effect now, whereas others have tentative schedules. Schedules for future rules are subject to change but all will have a significant effect on utility operations. A variety of resources are being developed

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assist water utilities in complying with new regulations.

The 1986 SDWA amendments gave USEPA the authority to enforce regulations by administrative orders. In addition, USEPA was granted authority to collect administrative penalties. USEPA has placed a high emphasis on enforcement activities, and enforcement actions will be taken against significantly non-compliant facilities and facilities that cause a public health threat. Further, the 1986 SDWA amendments authorized any person to sue an alleged violator of any requirement of the SDWA or its regulations, and regulations governing citizen suit notices have been promulgated.⁴³ Water utilities must work with their state primacy agencies to ensure that actions taken to meet current and future regulations coincide with actual effective dates for new regulations.

The new regulations will place a particularly heavy burden on state drinking water programs, which have the major responsibility for implementation and enforcement. States must adopt regulations no less stringent than federal regulations to retain primacy;⁴⁴ some states will have more stringent requirements. A study by the Association of State Drinking Water Administrators and USEPA identified a current annual shortfall in funding for state programs of \$32 million nationally.⁴⁵ The report also estimated that implementing the 1986 SDWA amendments will require an additional \$131 million. The states and USEPA are now beginning to confront the magnitude of the problem of inadequate state resources. In addition to addressing their own resource needs for meeting SDWA regulations, water utilities must be sensitive to the needs of their state primacy agencies and actively support adequate funding mechanisms for state drinking water programs.

New water quality regulations will require drinking water suppliers to carefully evaluate, optimize, and perhaps change current water treatment practices. Drinking water suppliers must stay informed about proposed and anticipated regulations and plan accordingly for compliance with promulgated regulations, so that the public they serve may benefit from drinking tap water of unquestionable quality.

Acknowledgment

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About the author:

Frederick W. Pontius is regulatory engineer at AWWA, 6666 W. Quincy Ave., Denver, CO 80235. A graduate of the University of Colorado (Boulder) with BS (civil engineering)

and MS (sanitary engineering) degrees, Pontius has been with AWWA since 1982. In his current position, Pontius monitors and evaluates legislation and regulations that affect the water industry. He prepares official AWWA statements on drinking water issues and represents the association at meetings, workshops, and study groups. His work has been published previously by JOURNAL AWWA and Journal WPCF.

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18 SAFE DRINKING WATER ACT

Table 1. Safe Drinking Water Act Compliance Deadlines

Substances	Statutory Deadlines
9 MCLGs and MCLs + monitoring	June 19, 1987
Public notice revisions	Sept. 19, 1987
Filtration criteria	Dec. 19, 1987
Monitoring for unregulated contaminants	Dec. 19, 1987
List of contaminants (DWPL)—final	Jan. 1, 1988
40 MCLGs and MCLs + monitoring	June 19, 1988
34 MCLGs and MCLs + monitoring	June 19, 1989
Disinfection treatment	June 19, 1989
25 MCLGs and MCLs + monitoring	Jan. 1, 1991

Note: DWPL = drinking water priority list; MCL = maximum contaminant level; MCLG = maximum contaminant level goal.

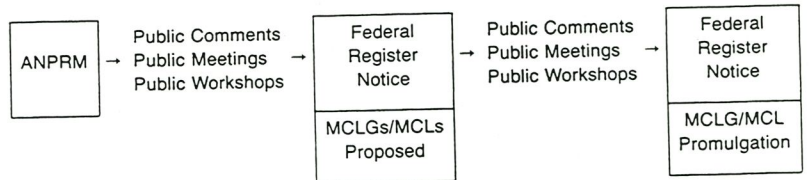


Figure 1. Regulatory development process.

Table 2. Office of Drinking Water Regulatory Phase Schedule

Phase	Substance	Expected Promulgation Date
I	Volatile organic chemicals (VOCs)	July 8, 1987
II	Synthetic organic chemicals (SOCs) and inorganic chemicals (IOCs)	June 1989
	Microbials and surface water treatment (filtration)	June 1989
	Lead/Copper (corrosion by-products) ^a	December 1988
III	Radionuclides	December 1988
IV	Disinfectants and disinfection by-products	June 1989
V	Other inorganic chemicals, synthetic organic chemicals, and pesticides	June 1989
VI	25 additional chemicals	January 1991

^a Have been separated from Phase II. Proposed NPDWR published.

EPA Issues More MCLs, Revamps Monitoring Rule

The Environmental Protection Agency set drinking water standards for another 33 contaminants in a rule signed Dec. 31 in accordance with a court-mandated deadline. The agency also repropoed standards for another five substances. When the final rule package is published in the *Federal Register* later this month, the agency will have set drinking water standards for 60 contaminants under the Safe Drinking Water Act.

The rule sets maximum contaminant levels, or MCLs, for 17 pesticides and 13 probable carcinogens. The rule also sets standards for asbestos, dioxin, polychlorinated biphenyls, toluene and two water treatment chemicals. The rule makes the standard for nitrate slightly more stringent by amending it to include nitrite. The package also includes a standard for styrene, a solvent never found in drinking water. EPA developed the standard because styrene is so widely used that there exists a possibility of contamination.

The MCL for one pesticide—alachlor—is so stringent that it is expected to result in a de facto ban on the chemical. Thealachlor standard is "extraordinarily stringent," Michael Cook, director of EPA's drinking water office, conceded during a Jan. 7 press briefing. He predicted thealachlor standard "will raise some serious concerns."

Pollution prevention goals "will be heightened" because of the new drinking water standards, Cook predicted, citing the "possibility that some pesticides will be taken off the market." The standards provide EPA's pesticide office with a clear target in reconsidering the registration of certain pesticides, he said.

Monitoring Requirements Revised

The final rule also revises the monitoring requirements for MCLs, providing states with the latitude to decide what chemicals utilities must test for and requiring monitoring for contaminants not yet regulated. The new monitoring regime applies not only to the 33 new MCLs, but many of the 34 MCLs set previously and the remainder of the total 85 contaminants the agency intends to regulate by March 1992.

The revisions are intended to simplify monitoring requirements, Cook said. The new approach sets fixed periods for monitoring at three, six and nine years—with the first period slated for Jan. 1, 1993. States can provide utilities with a waiver of the monitoring requirement for certain contaminants after making a vulnerability assessment to demonstrate that the chemicals are not present. The assessment must be made using EPA criteria and the agency will have the authority to override the waiver.

Most of the 47 states with primacy for enforcing drinking water standards are expected to apply for EPA-delegated authority to oversee the monitoring program. "I think in general states are prepared to go ahead and implement this rule," Cook said. However, he said, there is a "concern in the current fiscal atmosphere" that fewer states will take on the responsibility of the regulatory program, expected to cost states \$17 million annually to implement.

The standards, expected to prevent some 75 cancer cases a year, will require \$535 million in capital costs, EPA estimates. Some 3,300 facilities are expected to be required to adopt some form of treatment to meet the standards. More

than 6,000 utilities are affected by all 60 drinking water standards, Cook said.

The rules are expected to cost utilities \$88 million a year to implement. Monitoring will amount to \$24 million of that cost, while the cost of treatment and the annualized cost of amortizing capital will take up the remaining \$64 million, Cook said. In addition, the rule is expected to require a one-time \$34 million monitoring expenditure. EPA is uncertain, however, that those costs will be incurred, given the possibility of state waivers from the monitoring requirements.

The final rule, which also sets nonenforceable MCLGs, or maximum contaminant level goals, is expected to be published by Jan. 25. For more information, call EPA's Safe Drinking Water Hotline at (800) 426-4791; (202) 382-5533.

Phase II National Primary Drinking Water Regulations

CONTAMINANTS	EPA Standards (mg/l) ¹ MCL	MCLG
Inorganics		
Asbestos	7 MFL ²	7 MFL ²
Barium ³	2	2
Cadmium	0.005	0.005
Chromium	0.1	0.1
Mercury	0.002	0.002
Nitrate	10	10
Nitrite	1	1
Nitrate/Nitrite	10	10
Selenium	0.05	0.05
Volatile Organics		
o-Dichlorobenzene	0.6	0.6
cis-1,2 dichloroethylene	0.07	0.07
trans-1,2 dichloroethylene	0.1	0.1
1,2 Dichloropropane	0.005	0
Ethylbenzene	0.7	0.7
Monochlorobenzene	0.1	0.1
Styrene	0.1	0.1
Tetrachloroethylene	0.005	0
Toluene	1	1
Xylenes	10	10
Pesticides and PCBs		
Alachlor (Lasso)	0.002	0
Aldicarb ³ (Temik)	0.003	0.001
Aldicarb sulfone ³	0.003	0.002
Aldicarb sulfoxide ³	0.003	0.001
Atrazine (Atrane, Crisizina)	0.003	0.003
Carbofuran (Furadan 4F)	0.04	0.04
Chlordane	0.002	0
Dibromochloropropane (DBCP, Nemaflume)	0.0002	0
2,4-D (Formula 40, Weedar 64)	0.07	0.07
Ethylene Dibromide (EDB, Bromofume)	0.00005	0
Heptachlor (H-34, Heptox)	0.0004	0
Heptachlor epoxide	0.0002	0
Lindane	0.0002	0.0002
Methoxychlor (DMDT, Marlate)	0.04	0.04
Polychlorinated Biphenyls	0.0005	0
Pentachlorophenol ³	0.001	0
Toxaphene	0.003	0
2,4,5-TP (Silvex)	0.05	0.05
Treatment Techniques		
Acrylamide	0.005% dosed at 1 mg/l	0
Epichlorohydrin	0.01% dosed at 20 mg/l	0

¹ Final MCLGs and MCLs become effective July 1992. At that time, the current MCLs cease to be effective.

² MFL = million fibers per liter, with fiber length > 10 microns.

³ Levels for barium, aldicarb, aldicarb sulfone, aldicarb sulfoxide and pentachlorophenol are proposed. Final levels will be established by July 1991.

TABLE 4.—SUBSTANCES SELECTED FOR THE 1991 DWPL BASED ON THE RECOMMENDATION OF STATES AND EPA REGIONS

Manganese
Methyl ethyl ketone
Methyl isobutyl ketone
Tetrahydrofuran

III. 1991 Version of the Drinking Water Priority List

Table 5 shows the final 1991 Drinking Water Priority List of contaminants/contaminant groups. The list is comprised of 50 contaminants/contaminant groups from the 1988 list (which continue to meet the DWPL criteria and have not been regulated thus far) and 27 new substances selected from the four groups discussed in this notice. The total number of contaminants/contaminant groups on the revised list is 77.

TABLE 5.—PRIORITY LIST (1991 VERSION) OF CONTAMINANTS WHICH MAY REQUIRE REGULATION UNDER THE SAFE DRINKING WATER ACT

Substance	CAS No.
<i>Inorganics</i> (Total number = 14)	
Aluminum	7429905
Boron	7440428
Chloramines	
Chlorate	14866683
Chlorine	7782505
Chlorine dioxide	10049044
Chlorite	14995277
Cyanogen chloride	506774
Hypochlorite ion	14320611
Manganese	7439965
Molybdenum	7439987
Strontium	7440246
Vanadium	7440622
Zinc	7440666
<i>Pesticides</i> (Total number = 19)	
Asulam	3337711
Bentazone	25057890
Bromacil	314409
Cyanazine	21725462
Cyromazine	66215278
DCPA (and its acid metabolites)	1861321
Dicamba	1918009
Ethylene thiourea	96457
Fomesafen	72178020
Lactofen/Acifluorfen	77501634/5094666
Metalaxyl	57837191
Methomyl	16752775
Metolachlor	51218452
Metribuzin	21807649
Parathion degradation product (4-Nitrophenol)	100027
Prometon	1610180
2,4,5-T	93765
Thiodicarb	59669260
Trifluralin	1582098
<i>Synthetic Organic Chemicals</i> (Total number = 43)	
Acrylonitrile	107131
Bromobenzene	108881

TABLE 5.—PRIORITY LIST (1991 VERSION) OF CONTAMINANTS WHICH MAY REQUIRE REGULATION UNDER THE SAFE DRINKING WATER ACT—Continued

Substance	CAS No.
Bromochloroacetonitrile	83463621
Bromodichloromethane	75274
Bromoform	75252
Bromomethane	74839
Chlorination/Chloramination by-products (Misc.), e.g., Haloacetic acids, Halo ketones, Chloral hydrate, MX-2 [3-chloro-4-(dichloromethyl)-5-hydroxy-2 (5H)-furanone], N-Organochloramines	
Chloroethane	75003
Chloroform	67663
Chloromethane	74873
Chloropicrin	76062
o-Chlorotoluene	95498
p-Chlorotoluene	106434
Dibromoacetonitrile	3252435
Dibromochloromethane	124481
Dibromomethane	74953
Dichloroacetonitrile	3018120
1,3-Dichlorobenzene	541731
Dichlorodifluoromethane	75718
1,1-Dichloroethane	75343
2,2-Dichloropropane	594207
1,3-Dichloropropane	142289
1,1-Dichloroprocene	563586
1,3-Dichloropropene	542756
2,4-Dinitrophenol	51285
2,4-Dinitrotoluene	121142
2,6-Dinitrotoluene	606202
1,2-Diphenylhydrazine	122667
Fluorotrichloromethane	75694
Hexachlorobutadiene	87683
Hexachloroethane	67721
Isophorone	78591
Methyl ethyl ketone	78933
Methyl isobutyl ketone	108101
Methyl-t-butyl ether	1634044
Naphthalene	91203
Nitrobenzene	98953
Ozone by-products, e.g., Aldehydes, Epoxides, Peroxides, Nitrosamines, Bromate, Iodate	
1,1,1,2-Tetrachloroethane	630206
1,1,2,2-Tetrachloroethane	79345
Tetrahydrofuran	109999
Trichloroacetonitrile	545062
1,2,3-Trichloropropane	96184
<i>Microorganisms</i> (Total number = 1)	
<i>Cryptosporidium</i>	

IV. Future Revisions of the Drinking Water Priority List

In accordance with the requirements of the SDWA, EPA will revise the DWPL every three years. Revisions will drop those contaminants for which regulations have been promulgated, and add new contaminants which may be of concern. Revisions will also drop contaminants which no longer meet EPA's established criteria for contaminant selection. EPA welcomes public comments or any suggestions for future revisions of the list.

V. Other Requirements

A. Executive Order 12291

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirements of a Regulatory Impact Analysis. This notice is not a regulation and will not have a financial or economic impact on any party. Therefore, EPA has not prepared an Economic Impact Analysis (EIA). EPA will prepare an EIA, if appropriate, at the time of regulation of any contaminant on the DWPL.

B. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601, et seq.) requires EPA to explicitly consider the effect of proposed regulations on small entities. This notice does not constitute a proposed rulemaking activity. Therefore, the Regulatory Flexibility Act requires no such analysis. As EPA prepares regulations for contaminants selected from the Drinking Water Priority List under section 1412 of the SDWA, EPA will consider the effect of the proposed regulations on small entities.

C. Paperwork Reduction Act

There are no information collection requirements in this notice (44 U.S.C. 3501 et seq.).

VI. References

References for the revised DWPL are included in the public docket for this notice. This docket is located at EPA Headquarters, at the address listed at the beginning of this notice. Individuals should contact the docket clerk (202-382-3027) for access to the public docket. Materials for the revised DWPL are as follows:

FSTRAC, "States' Needs for Chemicals for Regulation in Drinking Waters," Hutcheson to Hais, April 27, 1990.

State of California, "Chemicals for Inclusion on the Candidate List for Regulation Under the Safe Drinking Water Act," Fan to Cantilli, May 2, 1990.

State of Illinois, "List of Compounds Which Have Been Detected in Public Water Supplies and at Cleanup Sites," Virgin to Cantilli, April 30, 1990.

State of Maryland, "List of Drinking Water Contaminants Which Have Occurred in Private or Public Water Systems in Maryland," Paull to Saxena, April 19, 1990.

State of Rhode Island, "Candidate Substances for Safe Drinking Water Act List of Priority Drinking Water Contaminants," Lee to Cantilli, May 10, 1990.

State of Wisconsin, "Substances for Inclusion on the Drinking Water Priority List," Swales to Saxena, April 16, 1990.

U.S. EPA, "National Primary Drinking Water Regulations: Synthetic Organic

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Chemicals, Inorganic Chemicals and Microorganisms: Proposed Rule" (50 FR 46980, November 13, 1985).

U.S. EPA. "Notice of the First Priority List of Hazardous Substances That Will Be the Subject of Toxicological Profiles and Guidelines for Development of Toxicological Profiles." (52 FR 12866, April 17, 1987).

U.S. EPA. "List of National Pesticide Survey Analytes" and "Preliminary Survey Results." National Pesticide Survey File 1987-1990.

U.S. EPA. "Drinking Water: Substitution of Contaminants and Drinking Water Priority

List of Additional Substances Which May Require Regulation Under the Safe Drinking Water Act" (53 FR 1892, January 22, 1988).

U.S. EPA. "Hazardous Substances Priority List, Toxicological Profiles: Second List (53 FR 41280, October 20, 1988).

U.S. EPA. "Toxics Release Inventory (TRI)," National Report 1988, Draft.

U.S. EPA. "National Primary and Secondary Drinking Water Regulation: Proposed Rule" (54 FR 22062, May 22, 1989).

U.S. EPA. "The Third List of Hazardous Substances That Will Be the Subject of

Toxicological Profiles (54 FR 43615, October 20, 1989).

U.S. EPA, Region 1, "Drinking Water Priority List (DWPL) for 1991—Listing of Candidates for Regulation." Chow to Cantilli, May 15, 1990.

Dated: December 31, 1990.

F. Henry Habicht,

Acting Administrator.

[FR Doc. 91-808 Filed 1-11-91 8:45 am]

BILLING CODE 5560-50-M

TABLE 1

Chemical Reduction Requirements

<u>Substance</u>	<u>Influent Challenge (mg/L)</u>	<u>Maximum Effluent Concentration (mg/L)</u>
THM ^{1,2} (as chloroform)	0.45 + 20%	0.10
Lead	0.15 + 10%	0.020
Fluoride ⁴	8.0 + 10%	2.0
Nitrate (as N) ⁴	30.0 + 10%	10.0
Barium	10.0 + 10%	1.0
Arsenic	0.30 + 10%	0.050
	(added as Trivalent)	
Cadmium	0.03 + 10%	.005
Chromium (Hexavalent) ⁴	0.15 + 10%	0.050
	(added as Hexavalent)	
Chromium (Trivalent) ³	0.15 + 10%	0.050
	(added as Trivalent)	
Selenium ⁴	0.10 + 10%	0.010
	(added as 1/2 selenite and 1/2 selenate)	
Mercury	0.006 + 10%	0.002
	(added as inorganic mercury)	
Lindane	.0006 + 10%	0.0002
Methoxychlor ⁵	0.30 + 10%	0.10
Toxaphene	0.015 + 10%	0.005
2,4-D	0.30 + 10%	.070
2,4,5-TP (Silvex)	0.03 + 10%	0.010
Trichloroethylene	0.300 + 10%	0.005

¹ For test purposes, chloroform shall be added to the influent water and shall be analyzed in the influent and effluent waters.

² It is noted that EPA has stated a future goal of 0.01-0.025 mg/l for THM and has indicated that the MCL will be reconsidered in the revised USEPA Primary Drinking Water Regulations. The meeting of EPA's future THM goal is recommended at this time.

³ Chromium shall be added as chromate for hexavalent chromium reduction and measured as total chromium. Trivalent chromium reduction may be claimed only by an additional test.

⁴ Sulfate concentration in the general test water shall be adjusted to 250 mg/L and total alkalinity adjusted to 150 mg as CaCO₃ and may not be conducted in conjunction with bacteriostatic performance test.

⁵ It is recognized that the reported solubility of methoxychlor is 0.04 mg/L. Under simulated test conditions the highest influent concentration attainable will be used.

Bacteriostasis
Cysts
Turbidity
Asbestos

ALLOWABLE VOLATILE ORGANIC CLAIMS

These tables set forth allowable claims which can be made for drinking water treatment units that have met the requirements of Section 5.2.1. Testing of three different types of activated carbon units demonstrated that chloroform is satisfactory as a surrogate for claims for the reduction of VOCs in the following tables.

*VOC's
This next page*

TABLE 2

Primary Regulated Volatile Organic Chemicals

<u>Chemical</u>	<u>Occurrence Levels (ppb)</u>	<u>Maximum Effluent Level (ppb)</u>
Benzene	30 ¹	5 ³
Carbon tetrachloride	40 ¹	5 ³
p-Dichlorobenzene	80 ²	5 ⁴
Trichloroethylene	300 ¹	5 ³
Trihalomethanes (surrogate chemical)	300 ¹	15 ³
1,1-Dichloroethylene	50 ¹	7 ³
1,1,1-Trichloroethane	80 ²	5 ⁴
1,2-Dichloroethane	100 ¹	5 ³

¹ Influent levels are the 95th percentile occurrence levels as per Federal Register, Vol. 50, No. 219, November 13, 1985, p. 46917.

² Since the 95th percentile occurrence levels were too low and thus, were not pertinent for testing these chemicals against their MCLs, a reasonable level was selected for surrogate testing as shown.

³ EPA Primary Maximum Contaminant Levels.

⁴ Maximum effluent concentrations set at the practical quantitation level (PQL) which is less than the MCLs.

TABLE 3

Other Volatile Organic Chemicals ¹

<u>Chemical</u>	<u>Influent Concentration (ppb)</u>	<u>Minimum Percent Reduction</u>
cis-1,3-Dichloropropene	80	95%
Chlorobenzene	80	95%
Ethylbenzene	80	95%
Hexachlorobutadiene	40	95%
ortho-Xylene	80	95%
Tetrachloroethylene	80	95%
Toluene	80	95%
trans-1,2-Dichloroethene	80	95%
1,1,2,2-Tetrachloroethane	80	95%
1,2-Dichlorobenzene	80	95%
1,2-Dichloropropane	80	95%
1,1-Dichloroethane	80	95%

¹In the absence of officially stated occurrence levels and MCLs, the surrogate influents were selected to provide a reasonable test.

5.4 STRUCTURAL INTEGRITY PERFORMANCE: Drinking water treatment units shall conform to the following structural integrity performance requirements when tested in accordance with Appendix D.

5.4.1 Units with permanent pressure vessels less than 8 inches (203 mm) in diameter subject to line pressure shall conform to the following requirements:

- Complete assemblies shall withstand a hydrostatic test pressure of 2.4 times the working pressure or 300 psig (2068 kPa), whichever is greater, for a period of 15 minutes without leakage of water from the unit.
- Metallic pressure vessels shall withstand a hydrostatic test pressure of 2.4 times the working pressure or 300 psig (2068 kPa), whichever is greater, for a period of 15 minutes without excessive permanent distortion, defined as an increase in vessel circumference more than 0.2 percent of the original circumference, or top or bottom head deflection more than 0.5 percent of the tank diameter.
- Nonmetallic pressure vessels shall have a burst pressure of at least 4.0 times the working pressure or 500 psig (3447 kPa), whichever is greater.
- Nonmetallic pressure vessels shall be watertight at 150 psig (1034 kPa) and after a minimum of 100,000 pressure cycles of 0 to 150 psig (0 to 1034 kPa) at $68 \pm 5^\circ \text{F}$ ($20 \pm 2.5^\circ \text{C}$).

January 25, 1991

TO: Members of the House Energy and Natural Resource Committee

Testimony on House Bill 2036

Good afternoon Mr. Chairman and members of the committee.

My name is Patrick Theisen. I am director of government affairs for the Water Quality Association.

As I stated to you in my correspondence, the WQA is a not-for-profit international trade association representing over 2,600 firms and individuals engaged in design, manufacture, production and distribution and sale of point-of-use (POU) water quality improvement technologies.

For the record, I would first like to point out that I have attached a revised copy of my letter which was forwarded to you, that more clearly represents the position of the WQA on House Bill 2036.

The WQA understands the Kansas Water Office's desires to protect the consumer from fraudulent sales tactics by individuals selling water treatment devices. In fact, I have met with members of the Kansas Water Office on numerous occasions to discuss language which would accomplish that goal without placing unnecessary additional burdens on some of our members.

Unfortunately, we do not believe House Bill 2036 would accomplish that goal. Rather, we believe the legislation would have a serious impact on a number of businesses and laboratories throughout the country.

Section 3, Subsection (1) of the Bill would mandate that all water treatment units make health contaminant removal claims (MCL's) or aesthetic claims (secondary MCL's) must have their units certified by the National Sanitation Foundation, a private laboratory and standard setting body.

*EVNR
1/28/91
attachment 9*

We are opposed to the state of Kansas granting a monopoly to a private organization such as NSF because it drastically limits the availability of testing facilities to the industry. It would also add a tremendous financial burden to those manufacturers and retailers who's products have been tested by a laboratory other than NSF. The cost to re-test each of these units ranges from \$25,000 - \$50,000.

The WQA and NSF worked together to develop these NSF standards. In fact, the WQA spent \$100,000 to underwrite the development of these standards. These standards were never developed with the intention that NSF would be the sole testing authority to approve or disapprove product performance claims by manufacturers.

I would like to point out that the WQA endorses the concept of product testing of residential water treatment units when health contaminant removal claims are made. We would suggest language be adopted which would require "units be tested using industry accepted product testing protocols or protocols which utilize technically valid methodology using environmental protection agency analytical testing methods for drinking water quality and maximum contaminant levels, or their equivalent."

This language would ensure that the products are in fact tested without mandating where those products have to be tested.

In addition, Section 3, Subsection (3) would require certain information be provided to the consumer prior to the consumption of sale. We have concerns as to the contents of this "statement", how it would be distributed and its impact on national marketers and catalog sellers. If adopted, this language would result in a complicated and costly process which will severely harm catalog selling in Kansas.

I would respectfully suggest the following alternative language to House Bill 2036:

1. That water treatment units that make health contaminant removal claims be tested using industry accepted product testing protocols or protocols which utilize technically valid methodology using U.S. Environmental Protection Agency analytical testing methods for drinking water quality and maximum contaminant levels or their equipment.
2. Information must be provided to the consumer which indicates all the contaminants the unit is capable of reducing from the water, the specification of the unit and other information that may be of relevance to the consumer.
3. I would suggest additional language to crackdown on deceptive or misleading sales tactics which may be used by "fly by night" operators, who may mislead consumers into buying their products.

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January 25, 1991

These recommended changes are attached to my testimony.

Thank-you for your time, and I would be glad to answer any questions.

Proposal Amendments to House Bill 2036

Section 1. This act shall be known and may be cited as the Kansas Drinking Water Quality and Treatment Units Act.

Section 2. As used in this act:

"Contaminant" shall mean only those physical, chemical, microbiological, or radiological substances in water for which a federal maximum contaminant level exists pursuant to the federal Safe Drinking Water Act or a state maximum contaminant level exists pursuant to the public health law.

"Department" shall mean the Department of

"Person" shall mean an individual, corporation, partnership, joint venture, or any business entity.

"Water treatment unit" shall mean a product, device or system designed for personal, family or household use and for which a claim or claims are made that it will improve the quality of water by reducing one or more contaminants through mechanical, physical, chemical or biological processes or combinations thereof.

Section 3. No water treatment unit that claims to reduce or eliminate the concentration of one or more health related contaminants in water supplies intended for human consumption may be sold or leased, offered for sale or lease, distributed, or installed in the State unless the unit has been tested using industry accepted product testing protocols or protocols which utilize technically valid methodology using United States Environmental Protection Agency analytical testing methods for drinking water quality and maximum contaminant levels, or their equivalent.

Section 4. No person shall sell, offer for sale, rent, lease, or distribute any water treatment unit for use in this state unless written material which provides the following is included with each unit:

- A) The name and mailing address of the manufacturer or distributor;
- B) The name, brand or trademark under which the unit is sold, and its model number;
- C) A statement listing all contaminants the unit is capable of reducing from the water;

- D) The specifications of the unit, including:
 - 1. The filter life, if applicable;
 - 2. Where applicable, the approximate capacity of the unit, expressed in gallons and/or period of time; unit, expressed in gallons and/or period of time;
 - 3. A summary of recommended operational procedures and requirements necessary for the proper operation of the unit including, but not limited to:
 - a. Electrical requirements;
 - b. Maximum and minimum operation pressure;
 - c. Maximum operating temperature;
 - d. Flow rate;
 - e. Maintenance requirements;
 - f. Replacement frequencies;
 - g. Explanation of any performance indicator, if available.
- E) Installation instructions;
- F) The manufacturer's warranty and guarantee, if applicable;
- G) A statement that performance of the water treatment unit may vary based on local water conditions;
- H) A statement, if true, that the unit is only intended for use with potable water;
- I) A statement, if true, that all the contaminants reduced by the unit are not necessarily in the user's water supply.

Section 5. A) It is unlawful for any person to print and/or disseminate any false advertising or to use or employ any deceptive act or practice as described in subdivision B of this section in the conduct of any trade or commerce for the purpose of inducing the sale, lease, rental, or distribution of water treatment units.

B) The following shall be deemed false advertising:

- (1) materially false or misleading claims concerning the quality of a prospective purchaser's public water supply or private well water;
- (2) materially false or misleading claims concerning the kind and degree of problems caused by water from a public water supply;
- (3) materially false or misleading claims of scientific certainty regarding the relationship between acute or chronic illnesses and water quality;
- (4) product performance claims and product benefit claims unless such claims are based on factual data obtained from tests conducted by a testing facility

following scientifically valid test procedures, which data is in existence at the time such claims are made;

(5) uses of pictures, exhibits, graph, charts or other graphic portrayals in advertisements in a materially false or misleading manner;

(6) materially false or misleading claims that serious harm may or will occur if the product is not purchased;

(7) statements that the water flowing from a water treatment unit is "pure" unless such words are reasonably defined;

(8) claims that a water treatment unit would provide a health benefit or diminish a health risk unless reasonably based on factual data;

(9) materially false or misleading statements that the contaminants reduced by a water treatment unit are present in excess of permitted levels in the drinking water of the person whom the statement is made;

(10) uses of endorsements or testimonials, unless such endorsements or testimonials state the opinion and qualifications of the person giving them; are not materially false or misleading; and accurately reflect the context in which they were made or given;

(11) uses of tests or test results of a consumer's drinking water to state or demonstrate the presence of contaminants in a prospective purchaser's drinking water for the purpose of inducing a person to purchase a water treatment unit unless those test results either have been obtained from a certified laboratory or were performed in accordance with the United States Environmental Protection Agency approved test methods or guidelines, where applicable, and the results of the tests are not used in a materially false or misleading manner.

C) Any violation of this section shall be enforced by any remedy available pursuant to this article.



Patrick Theisen
Director of Government Affairs

January 23, 1991

The Honorable Ken Grotewiel
Chairman, House Energy and Natural
Resources Committee
State House
Topeka, KS 66612

RE: Opposition to House Bill 2036

Dear Representative Grotewiel:

I am writing to inform you of the Water Quality Association's opposition to House Bill 2036.

For background information, the Water Quality Association is the not-for-profit international trade association representing over 2,600 firms and individuals engaged in design, manufacturer, production, distribution and sale of point-of-use (POU) water quality improvement technologies.

House Bill 2036 would have a very serious adverse impact on our industry and the consumers in Kansas. I would like to outline for you some of the concerns we have with the proposal.

- I. Section 3, subsection (1) of the bill would make it unlawful for "a seller to sell, lease, rent or advertise the sale, lease or rental of drinking water treatment units unless: (1) Each model has been listed and certified by the National Sanitation Foundation, Ann Arbor, Michigan or its other authorized branches."

The WQA is opposed to this section for the following reasons. First, we are adamantly opposed to legislation which would require product testing only at one specific laboratory. Such a proposal grants a legislative monopoly to a single laboratory. There are other qualified laboratories throughout the country that have spent millions of dollars setting up their facilities and which are extremely capable of doing product testing. This proposal would adversely affect these laboratories. Manufacturers would be reluctant to have their products tested at any other laboratory since they would be required to have their products retested by NSF in order to sell their products in Kansas.

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The Honorable Ken Grotewiel
January 23, 1991
Page Two

In addition, manufacturers that currently have their products tested by a laboratory other than NSF would be affected since they would be required to have their units retested by NSF. The cost to test each unit could range from \$25,000 to \$50,000 at NSF.

Second, granting a monopoly to a private organization such as NSF will drastically limit the availability of testing facilities to the industry. Since the testing process can take months to complete, it would be fair to say that this proposal would create, at best, chaos in our industry's ability to serve the state of Kansas.

Third, granting NSF a monopoly would eliminate price competition in the testing marketplace for Kansas and hinder it nationwide. The end result would be higher costs to manufacturers and thus the consumers of Kansas.

Finally, NSF and WQA worked together to develop the NSF standards against which NSF would test industry products. WQA spent \$100,000 to underwrite the development of these standards. They were never developed with the intent that NSF would monopolize product performance testing by manufacturers.

The WQA supports the concept of product testing for residential water treatment units when health contaminant removal claims are made. However, we believe that manufacturers should have the right to have their products tested at qualified laboratories of their choice so long as the tests are conducted by personnel technically competent to conduct such tests following scientifically valid test procedures.

- II. Section 3, subsection (3) would require that water treatment units may not be sold in Kansas unless: "each unit has a statement signed and dated by the consumer that he/she has received and read prior to the consummation of a sale the product information package which includes (a) consumer information handbook as specified in Section 6, (b) certification of product benefit claims and product performance claims by the National Sanitation Foundation and (c) manufacturer's performance data sheet."

While the Water Quality Association supports the concept of consumer information, we have some serious concerns with this proposal. First, who would be responsible for developing and distributing such "statement" to the sellers of water

treatment products? Second, what would this statement that the consumer must sign say? Third, who would pay for the development and distribution of this handbook? And lastly, such a proposal would have a serious impact on national marketers and catalog sellers. It would require them to establish a separate and distinct distribution process for water treatment units that would be sold in Kansas. A consumer could not order a unit from a catalog without first obtaining and signing the statement. The consumer would then be required to sign and return the statement to the catalog seller before the unit could be purchased. The end result would be a complicated and costly process that will effectively eliminate catalog selling in Kansas.

- III. Section 4 of the bill would require the certification of customized drinking water treatment units. These commercial/industrial units are those which are designed very often on a case-by-case basis for small businesses, apartment buildings, manufacturing plants, hospitals, hotels, restaurants and a number of other facilities. They are designed to meet the specifications of the business buying the equipment, and they are maintained and their product water tested on a regular basis. The company buying this equipment has recourse through the courts to guarantee performance by the seller. These units are extremely complex and no testing standards exist nor is there a lab in the country capable of testing such units to full capacity. It would cost literally millions of dollars to comply with this needless section.

These units differ from residential water treatment units because residential water treatment products are mass produced and the cost of testing can be spread out over all the units sold. However, in the case of commercial/industrial units, the cost would have to be absorbed by the individual buyer.

The WQA is opposed to language which would require the certification of commercial/industrial units.

- IV. In conclusion, House Bill 2036 would affect manufacturers and Kansas consumers in the following ways.

1. During tough economic times, it would place additional costs on some manufacturers of water treatment devices. The bill would also require an enormous amount of time and resources to work through the process.
2. Increase the cost of some products to consumers, since those manufacturers that must re-test their products will pass some of the costs on to consumers.

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January 23, 1991
Page Four


3. Could limit the consumer's choice of products.

Mr. Chairman, the WQA understands the Kansas Water Authority's desire to eliminate the "fly by night" operators that exist in Kansas. In our meetings with the Kansas Water Office, we suggested alternate language which we believe would address the issue of misleading advertising without placing unnecessary additional burdens on manufacturers. We look forward to discussing those suggestions with you at our meeting on Monday.

As always, please feel free to contact me if you have any questions or comments.

Sincerely,

WATER QUALITY ASSOCIATION



Patrick M. Theisen
Director of Government Affairs

PMT/sbk

cc: Raney Gilliland, Legislative Research Department

9-10

January 25, 1991

The Honorable Kenneth Grotewiel, Chairman
House Energy and Natural Resources Committee
State Office Building
Topeka, KS 66612

Dear Representative Grotewiel:

I understand and support the intent of House Bill 2036, which is to prevent exaggerated and unsupported product claims being made by some promoters of residential water treating devices. However, I am opposed to Section 3.(a)(1) of the bill which requires all drinking water treatment units to be tested and certified by the National Sanitation Foundation (NSF). I am opposed to this section of the bill for the following reasons:

- (1) This bill would grant NSF a virtual monopoly on testing of water treating devices --- not only in Kansas but across the United States. What manufacturer would have their products tested by any other lab when they would have to re-test the equipment again at NSF to be sold in Kansas?

Several independent laboratories, including Spectrum Labs, have spent hundreds of thousands of dollars over the last 12-18 months to prepare to conduct product testing for the industry. HB-2036 will, in effect, put these labs out of business.

- (2) In addition to granting NSF a testing monopoly, the bill does not restrict NSF costs in any way. As with most monopolies, elimination of competition will ultimately result in higher product costs for both manufacturers and consumers.
- (3) HB-2036 would impose a hardship on both large and small manufacturing companies, but a more severe hardship on the smaller ones. Many of these companies have already had their products tested by non-NSF laboratories. The proposed bill would require everyone to retest their products with NSF. The large manufacturers may be able to afford this needless duplication of testing but many small manufacturers could not. They would either be forced out of business or not sell in the state of Kansas.

E+NR
1/28/91

Attachment 10

The Honorable Kenneth Grotewiel, Chairman
House Energy and Natural Resources Committee
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Page Two

- (4) Several other states --- Wisconsin, Iowa, California and New Jersey --- have laws similar to Kansas that require testing of drinking water products for the purpose of proving the product claims. None of these states have granted a monopoly to any single laboratory. They have apparently been satisfied that other independent laboratories are equally qualified to do the testing.
- (5) Product testing and certification through the NSF laboratories is currently taking 6-18 months. If all manufacturers were required to submit their products to NSF, the approval time would undoubtedly stretch into several years.
- (6) NSF acted as the "standards writing agency" in the development of test protocols for drinking water equipment. This is not a guaranty that NSF is necessarily the most qualified laboratory to do drinking water product testing. In fact, many independent laboratories have people with much more experience in the industry than NSF. Some of these are the same people who served on the NSF committees that developed the product testing standards and protocols that are now being used by NSF. Under the proposed bill, these highly qualified labs would be precluded from testing.

In conclusion, I want to emphasize again that I am not opposed to the purpose and intent of HB-2036. However, I am strongly opposed to the provision that would grant NSF exclusive rights to do all product testing. I truly believe that this bill, if passed in its present form, will put my company and other small testing laboratories out of business.

Sincerely,



Duane D. Nowlin, Ph.D.
President

DDN/rwl

cc: Kansas House Energy & National Resource Committee Members

Comments of Vincent Slusarz, General Counsel, Kinetico Incorporated,
Newbury, Ohio - before the Kansas House Energy and Natural Resources
Committee on January 28, 1991

Re: Opposition to House Bill 2036

Chairman Grotewiel and the Honorable members of this committee:

On behalf of Kinetico Incorporated, we appreciate this opportunity to
be heard regarding our opposition to House Bill 2036.

Kinetico Incorporated is an Ohio-based manufacturer of water processing
equipment for residential, commercial and industrial applications. The
company was founded in 1970 and has since grown to be one of the
largest manufacturers in the industry. Our products are distributed
throughout the country by our authorized independent dealers and in
many foreign countries. We have ten authorized dealers in Kansas, one
of which is located here in Topeka.

The water processing industry has been in existence since the early
part of this century. Up until approximately ten years ago, the
industry's market was primarily in rural or semi-rural areas.
Typically, the water found in these areas might be either hard, acidic,
iron-laden or any combination thereof. A homeowner or business in
these areas might choose to improve the quality of their water by
purchasing one of our industry's products. An iron filter, as an
example, would remove the unsightly stains on fixtures and the iron
taste from the water. A softener, as another example, would remove the
hardness from the water to better facilitate the washing of laundry.

Within the last decade, however, manufacturers have used the water
treatment knowledge gathered over the years to help address the problem
of health-related contaminants in drinking water, a problem that was
brought to the forefront by the Federal Safe Drinking Water Act.
Unfortunately, a distinct minority of industry members used misleading
tactics in order to sell products to the public. The employment of
these tactics is a large reason why we are all here today.

E+NR
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attachment 11

Like any business, we generally oppose the regulation of industry due to the actions of a fraction of its members. We do, however, recognize the compelling need for public assurance when a product claim involves removal of a health-related contaminant.

With the foregoing comments in mind, we oppose House Bill 2036 for the following reasons:

1. Section 3, Sub-section (1) of the bill requires independent testing by the National Sanitation Foundation (N.S.F.). While we have submitted all of our applicable products to N.S.F. for testing and certification under the pertinent Standard, we believe it is anti-competitive to only designate one laboratory.

We believe a better approach is to adopt language that requires testing in strict accordance with the N.S.F. Standard's protocol, but would allow for this testing to be performed by other qualified laboratories.

Additionally, N.S.F. Standards do not encompass every identified health-related contaminant. Therefore, language should also be included to allow for testing for these other contaminants by a qualified laboratory using accepted methodology.

2. Section 3, Sub-section (3) requires a signed and dated statement by the customer that he or she has received and read the consumer information handbook, the N.S.F. certification of product benefit claims and the manufacturer's performance data sheet.

Kinetico understands the lack of consumer education about the quality of water, the need for our industry's products and how these products perform. We submit, however, that this initial bombardment of information will, in all likelihood, only confuse the consumer further.

We prefer to see the Cooperative Extension Service continue its efforts on public education. Should a handbook be necessary, we would appreciate the opportunity to contribute to its content to ensure a fair and accurate message.

We would agree that our industry should be involved in promoting and making the handbook available to the public. This handbook, however, should not be distributed by the seller of the equipment at the time of the sale presentation. Because of the "received and read" provision, a seller would be forced to either wait while a consumer tried to digest all of its information or come back at a later date. If the handbook is considered the base of the consumer's knowledge from which the performance data sheet can be understood, it should be read and understood in advance of the sale presentation.

Additionally, the signature requirement would make it impossible for a manufacturer to distribute its products through a catalogue.

Finally, N.S.F. requires the seller to make available a "Sales Fact Sheet." This fact sheet contains all of the information required by the bill's "performance data sheet" and the N.S.F. certification (see attachment). Use of the Sales Fact Sheet would eliminate the need for two documents.

3. Section 3 would also require testing of products claiming removal of substances for which there is a secondary maximum contaminant level (smcl). A number of these substances have no demonstrated adverse health characteristics. Products removing these aesthetic substances should not be subject to this regulation. Currently, no other state requires testing of products used for aesthetic purposes.
4. Section 4 of the bill would require certification of commercial/industrial products. Again, no other state

requires such certification. These applications vary greatly from site to site. Such variables as water usage, flow rates and the water quality needs of every business affect the type and size of equipment needed.

The bill would require each such application to be tested by N.S.F. N.S.F. Standards are not designed to gauge this type of an application. Even if an N.S.F. Standard existed, the cost of testing for a specific site would have to be reflected in the price to the business. This would effectively prohibit the sale of our equipment.

We do appreciate your concerns. They are well-founded. We submit, however, that the legislation in its current form harms manufacturers, retailers and the people of Kansas. We would appreciate a no vote on this bill.

Thank you for your consideration.

Consent
8/

STANDARD NUMBER 58

Reverse Osmosis
Drinking Water Treatment Systems



NATIONAL SANITATION FOUNDATION
LISTING SERVICES

11-5

- Where nitrate is claimed, use shall be limited to influent concentrations of 30 mg/L or less, unless additional treatment is provided.
- A description of the performance indication system and how it functions (if applicable).
- Model number of replaceable treatment components (if applicable)
- Applicable warning signs
- Production rate in gpd (L/day)

6.1 DATA PLATE: A data plate or plates shall be clearly and permanently affixed to the system in a readily accessible location and shall contain:

- Indication of conformance to NSF Standard 58 for the stated water treatment claims. Manufacturers claiming VOC reduction shall indicate conformance to NSF Standard 58 for VOC reduction and refer the end user to the sales fact sheet for permissible VOC claims.
- Equipment name and function(s)
- Manufacturer's name and address
- Model number
- CAUTION STATEMENTS: "Do not use where water is microbiologically unsafe or with water of unknown quality, except that systems claiming cyst reduction may be used on water containing cysts."
"Nitrate reduction systems are acceptable for treatment of influent concentrations up to 30 mg/L; additional treatment or individual design shall be required for higher influent levels."
- Operational volts, amperage and Hertz of system (if applicable)
- Maximum operating temperature in degrees F (degrees C)
- Maximum and minimum operating pressure in psig (kPa)

6.2 SALES FACTS SHEET: A sales facts sheet shall be available to the purchaser for each system and shall include at least the following information:

- A statement that this system conforms to NSF Standard 58 for (the stated performance claims)
- Production rate in gpd (L/day)
- Electrical characteristics, if applicable
- Maximum and minimum operating pressure in psig (kPa)

- Maximum operating temperature in degrees F (degrees C)
- Ambient temperature limitations at operating conditions
- General installation conditions and needs
- General operation and maintenance requirements including but not limited to, user responsibility, replacement elements, and service availability
- Statement of manufacturer's limited warranty in accordance with federal and state laws
- CAUTION STATEMENTS: "Do not use where water is microbiologically unsafe or with water of unknown quality, except that systems claiming cyst reduction may be used on water containing cysts."

"Nitrate reduction units are acceptable for treatment of influent concentrations up to 30 mg/L; additional treatment or individual design shall be required for higher influent levels."

- Reduction capabilities of specific chemicals, for example, actual VOCs specified in Standard 58 with influent and percent reduction (or to below MCLs where appropriate).
- Specific requirements dictated by the influent water characteristics (e.g. chlorine, bacteria, pH, temperature, iron, turbidity, hardness, test pressure, etc.) that may effect RO membrane polymers or other components shall be addressed in language easily understood by the user.

TO: Members of the House Energy
and Natural Resources Committee
State of Kansas

Ladies and Gentlemen

I thank you for the opportunity to speak before the committee regarding the proposed legislation House Bill 2036 on Water Treatment Appliances.

My name is Wayne Morris and I represent a small company, Associated Mills, Inc., who has been making water treatment appliances under the POLLENEX label for over 15 years. We manufacture water treatment products in Chicago for sale in retail establishments such as Sears, J.C. Penny's, K-Mart, Walgreens, Osco, and True Value Hardware, Ace Hardware Stores and many other national retail chains. We mainly provide products that improve the taste and odor of the drinking water. Often, our products are the first contact people have with water treatment products, and they later step up to more complex and more expensive systems.

The passage of such legislation, as in current form, could completely put a company, such as POLLENEX, out of the water treatment business and result of the loss of many jobs. Let me explain.

1. The requirement of only NSF Certification on a water treatment appliance would increase the retail price of any of our units by at least \$20.00, and more likely \$30.00. Each unit would be subjected to a testing and registration charge of nearly \$30,000. We sell 15 different models. The total cost would be \$450,000 to begin. For what?

We already have test results on all of our water treatment appliances by nationally recognized testing laboratories. Why do we need to do this again at so much larger a cost? What benefit do the consumers in Kansas obtain by mandating only N.S.F. Certification.

E+NR
4/28/91
Attachment 12

2. Mandating only N.S.F. Testing Laboratories is not good business practice. Your state certainly would not mandate that only U.L. listed electrical appliances could be sold. You would not mandate that the oil companies all use the same laboratory to grade their gasolines, or to carry it another step, only one grocery store chain could operate in Kansas. Why? Because our countries' economic system is built upon free enterprise/supply and demand/competition.

There are many extremely well qualified, independent laboratories in the United States that can test to American standards as published by N.S.F. These standards were written by a committee of experts of the field and, I believe, belong to all of the people to use, not exclusively to the National Sanitation Foundation. I am not criticizing the N.S.F. It is a fine organization, composed of highly competent people who apply their mark diligently. Fortunately though, the American marketplace is able to decide whether having, or not having, the N.S.F. Certification Mark is of value. I do not believe that should be legislated.

3. This House Bill 2036 also requires that for both aesthetic (taste and odor) claims, as well as contaminant reduction claims, that companies test and list product with N.S.F., write a special Kansas Performance Data Sheet, and include a Kansas Consumer Brochure. How is a retailer, such as K-Mart or Sears, to handle this. If the regional distribution center for K-Mart is in Kansas City, Missouri, covering both of these states, how are they to regulate goods flowing to Kansas from those to Missouri. They cannot! Most retailers have told us they will simply stop carrying water treatment products, if that happens.
4. What is gained if retailers stop carrying water treatment products? Will the only way you can purchase them be through door to door salesman? I believe this will increase the cost. I have found the exact same performance water filter at retail for \$29.00, and offered at \$99.00 by a door to door salesman.

The advertising claims of companies such as POLLENEX, Teledyne, Ametek, Sears, Omni, Cuno that sell in retail are scrutinized carefully by both state attorney generals and the U.S. Federal Trade Commission. Who watches the literature and claims of the door to door salesmen? Who monitors their claims?

Is it not possible, ladies and gentlemen, that by your actions in adopting this bill--instead of improving the quality of the advertising and products--that you will drive the more honorable companies out of business? and increase the price of goods to the consumer

5. I am certain that the interest of many people who participated in drafting this legislation is sincere. We too, who manufacture these units, want the products to be of high quality and the advertising to be true. All of us are, after all, consumers too. We applaud your efforts to protect the consumers in Kansas. We do not think this is the way to do it. The association to which we belong, the Water Quality Association, has advertising protocols that it enforces. We believe that present consumer protection legislation in Kansas, if vigorously enforced, could do an excellent job of protecting the people of Kansas.
6. Ladies and gentlemen, may I request that you exercise extreme caution. While many people supporting this legislation may do so out of sincere interest, there may be some who would do so for economic gain. It is possible that such restrictive, onerous, monopolistic, and mandatory legislation would benefit some large and powerful companies who can afford these large prices, while driving other excellent, but small, companies out of business.
7. Lastly, I urge you to think of fiscal responsibility. The operation of administrating such a formidable department as to review the testing, register, supervise, and check-up on all companies making water purification products would be exorbitant. As the states of Iowa and Wisconsin learned, it can cost over \$1 million per year and the cost will grow each year. Colorado recently considered such legislation and rejected it. Does Kansas have this money to spend? Given the economic circumstances of our country, is this the year to spend this money?

I would urge you to reconsider this action. I believe Kansas does not need such legislation at this time. The consumer can be protected in other ways.

Thank you.



Wayne E. Morris
Director of Research & Product Development
Associated Mills, Inc./POLLENEX
165 North Canal Street
Chicago, IL 60606
Tel. (312) 454-7969

TESTIMONY TO BE PRESENTED BY ARTHUR D. BROOKFIELD II
PRESIDENT, GREAT WATER COMPANY, INC.

Great Water Company, Inc. is a Kansas corporation chartered in February, 1990. Our offices are located at 9420 Mission Road, Shawnee Mission, Kansas, 66206. We are a member of the Water Quality Association and the American Water Works Association.

We are an original equipment manufacturer. We design and assemble water treatment devices for residential, commercial and industrial clients.

Our Technical Director, Karl F. Hirsch, is a highly qualified water treatment professional with over 18 years experience with reverse osmosis technology. (See resume attached.)

Great Water Company realizes the problems plaguing our industry, but feels House Bill 2036 would do more harm to legitimate water treatment professionals than the scoundrels it is designed to stop. We will attempt to point out the problems with this legislation, as well as offer a potential solution.

The first, and most glaring problem, is the inordinately high cost of the NSF Certification process required in Section 3 of HB 2036. We have documented the process for our residential reverse osmosis system to be rated under NSF Standard 58. The cost for this one product is \$24,940.00 (Documentation

attached.) We strongly believe that is an excessive cost for any vendor, much less a new company such as Great Water Company, Inc. We would have to pass this cost over a few hundred units, not the tens of thousands of units a national franchise operator sells nationwide.

Second, the National Sanitization Foundation is a well respected and authoritative laboratory. However, even if the units were certified by NSF, this certification would not guarantee proper installation. Third, it would not certify that the equipment will operate properly under local water conditions. The consumer would only be truly protected if their water was tested post installation. We feel the state of Kansas has adequate facilities to offer their consumers this service at a minimal cost.

A fourth problem is naming a single laboratory for validation. It is not good policy to, in effect, force manufacturers to use only one source. I am sure the state has a policy of multiple vendor bidding for all their purchasing. Why would the State of Kansas write legislation that would require a single source to validate point-of-use water equipment?

To recap the problem with Section 3 of HB2036:

- Problem 1: High cost of NSF
- Problem 2: No control over proper installation.
- Problem 3: Local water conditions
- Problem 4: Monopolistic regulations

Great Water believes that post installation validation is a superior method. To achieve this end, we would propose that the state use Kansas-authorized laboratories to perform the tests to validate the customers' water after installation.

This accomplishes several things:

1. Validates the final product with assurance that the installation was performed properly.
2. Saves the customer money.
3. Keeps legitimate water professionals in business.
4. Easier to enforce.
5. Keeps revenue in the state.

The post installation validation process might proceed as follows:

The consumer could be furnished with a test kit to be sent to a state approved laboratory for post installation validation testing for a nominal fee. Should the test sample have a contaminant level exceeding manufacturer's specifications, the dealer/manufacturer would pay for the cost of the test and correct the product. The dealer/manufacturer would also pay for a second validation test after correcting any problem, to be sure the specifications are then met.

The principals of Great Water Company feel this Bill, as written, would be very detrimental to legitimate water quality professionals, and their customers, in the State of Kansas.

Great Water estimates the cost to validate all of our products to be in excess of \$200,000. This cost must be passed on to our customers, making us noncompetitive, or we will have to close our doors to the residential customer.

We are positive it is not the intent of HB2036 to force Kansas companies out of business.



National Sanitation Foundation

3475 Plymouth Road
P.O. Box 1468
Ann Arbor, Michigan 48106 U.S.A.
Telephone: 313-769-8010
Telex: 753215 NATSANFND UD
FAX: 313-769-0109

APPLICATION FOR CERTIFICATION SERVICES

Standard or Criteria No. 58

Date:

To be completed by applicant:

1. Company name: (Name and address as it is to appear in published Listing)

2. Address:

City: State/Country: Zip Code

Telephone: Telex: 800: Fax:

3. Name of owner (manager, president):

4. Name of correspondence contact: Mr. Mrs. Ms. Dr.

5. Name of production facility: (All production facilities for Listed products. If more than one facility is involved, please attach an application for each facility.)

Address:

Telephone: Telex: Fax:

6. Plant contact: Mr. Mrs. Ms. Dr.

7. Type of equipment or products for which services are requested:

8a. A check in the amount of \$ 1,500.00 is enclosed to cover the following charges:

Standards Development Fee (nonrefundable) \$

Other \$ 1,500.00

b. Charges for regional services and inspections, toxicological assessment of materials or evaluation will be invoiced as rendered.

c. Charges for Certification services must be paid along with the "Contract for Certification Services," which will be executed upon satisfactory completion of all requirements for Certification.

9. Affidavit:

I certify that I have read and agree to comply with the applicable standard or criteria, and the general and program specific policies relating to the use of a NSF Mark, and I am authorized by the company to apply on behalf of the company for the evaluation and Certification services of the National Sanitation Foundation in connection with products manufactured by the named Company. I am further authorized to agree that the company will pay NSF for any charges billed for services rendered in the initial evaluation and/or testing of products for Certification.

Signature

Date

Name and Title (print or type)

cav3/LISAPPLV11-89

13-5

The National Sanitation Foundation offers "...evaluation, testing and certification services for Standard 58: Reverse Osmosis Drinking Water Treatment Systems. This standard is for point-of-use systems intended for the reduction of total dissolved solids (TDS) and specific contaminants from drinking water and materials and components used in these systems." (Per 12-13-90 cover letter from NSF.)

The following pages attempt to list the NSF requirements and related charges necessary to have the Great Water Reverse Osmosis System rated under Standard 58.

STANDARD 58

1. Completion of "The Reverse Osmosis Drinking Water Treatment Unit Data Sheet" provided by NSF (Sample attached.)
2. An 8 1/2 X 11 exploded schematic of the system and a parts list identifying all parts - all parts should be identified and numbered.
3. A copy of the Operation, Installation and Owner's Manuals along with instructions for initiation of service. Included in the manuals must be; instructions for flushing the preservative from the system, a statement of the warranty, a statement describing the amount of water discharged as reject water, a diagram showing proper air gap installation to waste connections and use limitations, production rate in gpd or lpd. (See pg. 12-13 Standard 58 Booklet enclosed.)
4. Completed "Application For Certification Services" supplied by NSF. (Sample Attached.)
5. Blueprints, Specifications and Design Data.
6. A complete RO system for review.
7. A complete parts list, cross-referenced to the above mentioned schematic, indicating the supplier of the components and/or parts.
8. A copy of sales facts pertaining to the unit.
9. Data plates and labels for the unit.

Application Fee

Standard Development Fee.....\$1500.00
Must accompany application and product to be reviewed.

Testing Fees

Equipment Receival and Handling.....80.00
Must accompany application and product to be reviewed.

The first tests to be performed on the product:

15 Minute Hydrostatic Test.....110.00
Hydrostatic Burst Test.....100.00
100,000 Cyclic Pressure Test.....315.00
Chemical Taste and Odor Extraction...1300.00

Chemical Reduction Test 1

TDS Challenge Water Prep. Fee.....1115.00
TDS Reduction.....850.00
Arsenic Reduction.....615.00
Barium Reduction.....615.00
Chromium (Hex) Reduction.....965.00
Chromium (Tri) Reduction.....615.00
Nitrate Reduction.....570.00

Chemical Reduction Test 2

Chemical Challenge Water Prep. Fee...1390.00
Cadmium Reduction.....615.00
Fluoride.....810.00
Lead Reduction.....615.00
Mercury Reduction.....850.00
Selenium Reduction.....615.00

Subtotal of structural and claims tests \$13,645.00

Review of all documentation; sales literature, manuals etc. is billed at the rate of \$100.00 per hour. This process creates an expense amount that is unknown until the end of the process. It attempts to review all literature that must accompany the RO system so that the consumer is educated about the product, what it does, how to install it, what performance to expect and how to maintain it.

If what is submitted is not satisfactory it is sent back for revision. This pattern will be repeated until all manuals are satisfactory to NSF.

Subtotal UNKNOWN

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The following parts comprise the GW-RO System for the purpose of determining the cost of the material formulation review. This process charges the business \$210.00 for each formulation.

Saddle Valve
 Rubber Seal.....210.00
 Stainless Steel Lance.....210.00
 Brass valve Body.....210.00
 Brass Pkg Nut.....n/c
 Brass Valve Stem.....n/c
 Brass Insert.....n/c
 Plastic Ferule.....n/c
 Natural Tubing.....210.00
 JACO Female X Comp.....210.00
 1/4 NPT M X 1/4 Barb210.00
 Blue Tubing.....210.00
 1/4 NPT M X 1/4 Barb.....n/c
 1/4 SMC Ball Valve
 Body.....210.00
 Ball.....210.00
 Nylon 1/4" Street Elbow.....210.00
 1st Filter Bowl Cap.....210.00
 1st Filter Bowl.....n/c
 P-5 Filter Cartridge.....210.00
 1/4" Hex Nipple.....210.00
 2nd Filter Bowl Cap.....n/c
 2nd Filter Bowl.....n/c

Filter O Rings.....210.00
 CP-1 Filter
 Pleated Material.....210.00
 Rubber End Caps.....210.00
 1/4" Hex Nipple.....n/c
 3rd Filter Bowl.....n/c
 3rd Filter Bowl Cap.....n/c

CBC-10 Filter
 Charcoal.....210.00
 Material coating.....210.00
 Netting.....210.00
 End Caps.....210.00
 Gaskets.....210.00
 Plastic Tube.....210.00
 JACO 1/4" Male X Comp.....210.00
 White Tubing.....210.00
 Shut Off Valve
 Valve Body.....210.00

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Diaphragm.....210.00
 White Tubing.....n/c
 1/8" Male X 1/4 Comp.....210.00
 Membrane Housing and Cap.....210.00
Membrane
 Membrane Cntr Support.....210.00
 Poly Layer.....210.00
 Porous Layer.....210.00
 Mesh Spacer Layer.....210.00
 Brine Seal.....210.00
 O Ring.....210.00
 Check Valve.....210.00
 1/8" NPT X 1/4 Comp.....n/c
 White Tubing.....n/c
 Check Valve.....n/c
 F 1/4 NPT X 1/4 Barb.....n/c
 Blue Tubing.....n/c
Faucet Conductivity System
 Plastic Body.....210.00
 Gold Probes.....210.00
 Valve Seat.....210.00
 Plunger.....210.00
 Spout Lining.....210.00
 1/4 Barb x1/4 Barb x1/4 Barb T.210.00
 Blue Tubing.....n/c
 Steel Tank.....210.00
 Rubber Diaphragm.....210.00

Subtotal Formulation Review \$9,030.00

After all testing has been performed a fee of \$1485.00 will be assessed to the approved unit to satisfy the Annual Certification Fee for Standard 58.

Subtotal Annual Cert. Fee \$1,485.00

TOTAL EXPENSE GREAT WATER WILL INCUR TO RATE \$24,940.00
 GW-Reverse Osmosis Unit

FUTURE AND ONGOING EXPENSES

Each time the already rated RO undergoes a revision or addition the new part or component must go through a formation test (\$210.00 each formation) and a structural test (\$110.00, \$100.00, \$315.00)

Every five years the RO unit needs to be retested. At this time an integrity test is performed (\$110.00, \$100.00, \$310.00) and the unit must be retested for the claims made. (Both challenge water fees plus contaminant reduction for each one claimed.)

Each year the \$1,485.00 Annual Certification Fee and the \$780.00 Regional Service and Inspection Fee are billed.

The entire process usually takes 9 months to 1 year from receipt of the RO and paper work.

KARL F. HIRSCH
Technical Director
Great Water Company, Inc.
9420 Mission Road
Shawnee Mission, KS 66206
(913) 648-8800

Professional Background

Great Water Company
Shawnee Mission, Kansas

Technical Director

1990-Present

Responsible for product development, technical support and commercial/medical consultation and applications for a company offering custom, high-quality water purification systems.

St. Luke's Hospital
Kansas City, Missouri

Equipment Maintenance Manager
Dialysis and Transplantation Dept.

1980 - 1990

Handled operations and maintenance of 30 in-house stations of hemodialysis equipment, dialysis equipment for acute and home dialysis as well as consulting with other dialysis facilities in the Kansas City area.

Hemodialysis Maintenance Supervisor
and Consultant

1974 - 1980

Supervised maintenance of dialysis equipment and water purification equipment used in the hospital and home dialysis. Also served as consultant to the Medical center on water and fluid systems for dialysis.

Extracorporeal Technician
Team Leader, Transplant Procurement

1972 - 1974

Responsible for operation of hyperbaric oxygen equipment, performance of fluid and electrolyte balance, in-center hemodialysis and home hemodialysis training.

As a specialist the area of hemodialysis and transplantation, served as participant in the transplant procurement team establishing protocol for organ retrieval and transplantation.

KARL F. HIRSCH
Page 2.

Professional Presentations

Article:

A Reuse Method for CDAK, Published in Dialysis & Transplantation, Volume V., No. 2, February/March 1976

Presentation:

"Aspects of Adequate Hemodialysis"
10th Annual Midwest Organ Bank Transplant Symposium, 1983

"Dialyzer Reuse - The State of the Art"
Missouri Kidney Program Seminar, 1982

Certification

BONET, 1980

Certified Hemodialysis Technician, 1980

Water Quality Association

- Certified Water Specialist, 1988
- Certified Water Installer, 1989

Certified Water Systems Operator, Class II
State of Kansas

Hach Technical Training Class Water Testing, 1990

STATE OF KANSAS



WATER SUPPLY SYSTEM OPERATOR

This is to certify that

KARL F. HIRSCH

has successfully completed the requirements for

CLASS II OPERATOR

and has met all qualifications as a certified water supply system operator in conformance with

K.S.A. 65-4501 through 65-4517 and is qualified to operate

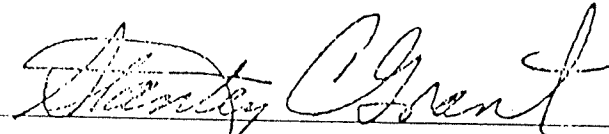
all Class I and II Water Supply Systems

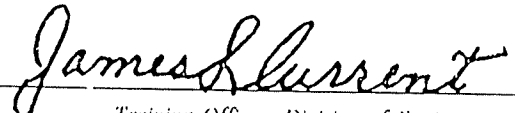
Certificate Number 6866

Date Issued December 12, 1988

Expiration Date

December
1991


Secretary, Department of Health and Environment


Training Officer, Division of Environment

Kansas Department of Health and Environment Topeka, KS 66620-0001 (913) 296-5510

13-13



THE ORGANIZATION DEDICATED TO THE ESTABLISHMENT AND MAINTENANCE OF THE HIGHEST DEGREE OF PROFESSIONAL INDUSTRY STANDARDS, AND THE ADVANCEMENT OF THE PUBLIC WELFARE THROUGH EFFORTS TO IMPROVE THE QUALITY OF WATER AND OF LIFE IN THE UNITED STATES AND THROUGHOUT THE WORLD
CERTIFIES THAT

Karl Hirsch

HAS DEMONSTRATED ABILITIES AND SKILLS THROUGH SATISFACTORY COMPLETION OF TESTING AND DEMONSTRATION OF SUPERIOR KNOWLEDGE IN THE POINT-OF-USE/POINT-OF-ENTRY WATER QUALITY IMPROVEMENT FIELD AND IS HEREBY DESIGNATED AS A

CERTIFIED INSTALLER

JULY 1990 - JUNE 1998

TERM OF CERTIFICATION

EXECUTIVE DIRECTOR

A handwritten signature in cursive script, likely belonging to the Executive Director, positioned above the printed name.



*NOT VALID IF CANCELLED OR REVOKED

B-14



THE ORGANIZATION DEDICATED TO THE
ESTABLISHMENT AND MAINTENANCE OF THE HIGHEST DEGREE OF
PROFESSIONAL INDUSTRY STANDARDS,
AND THE ADVANCEMENT OF THE PUBLIC WELFARE
THROUGH EFFORTS TO IMPROVE THE
QUALITY OF WATER AND OF LIFE IN
THE UNITED STATES AND THROUGHOUT THE WORLD,
CERTIFIES THAT

Karl F. Hirsch

HAS DEMONSTRATED ABILITIES OF EXCELLENCE
THROUGH SATISFACTORY COMPLETION OF
EDUCATIONAL COURSES, TESTING AND PRACTICAL
EXECUTION OF SUPERIOR SKILLS IN THE
POINT-OF-USE/POINT-OF-ENTRY WATER QUALITY
IMPROVEMENT FIELD AND IS HEREBY
DESIGNATED AS A

CERTIFIED WATER SPECIALIST

JULY 1990 - JUNE 1995

TERM OF CERTIFICATION

John J. Censky
EXECUTIVE DIRECTOR

*NOT VALID IF CANCELLED OR REVOKED

13-15

Fort Scott Community College
Fort Scott, Kansas




Certificate of Completion

Be it known that **KARL F. HIRSCH**

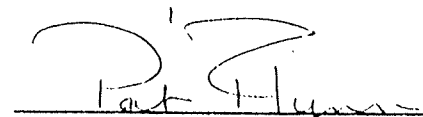
has successfully completed the necessary requirements for

Water Plant Operation & Maintenance

at Fort Scott Community College this 6th day of Dec, 1988



President of College



Instructor of Course

13-16



MINERAL-RIGHT, INC.

P.O. Box 427
NorthPark Industrial Park
Phillipsburg, Kansas 67661

Telephone
(913) 543-6571

Dear Chairman Grotvwiel and Committee Members:

Our names are Gary Steffens and Camie Schneider. We manage Mineral-Right, Inc. located in Phillipsburg, Kansas. We are manufacturers of Zeolite. This is a special kind of zeolite used in the water conditioning industry. We are the only manufacturer of this type of zeolite in the world. We also assemble and sell Water-Right water conditioning equipment to the wholesale plumbing, well, pump and mechanical industry markets.

We strongly support and encourage legislation for certification of water conditioning equipment and proper water analysis.

We would like to first address House Bill #2035. We are in agreement with House Bill #2035 with the exception of lines 21 through 24:

(It shall be unlawful for any person to perform analytical tests on private water supplies unless the laboratory in which such tests are performed has been approved and certified by the Secretary of Health and Environment to perform such tests.)

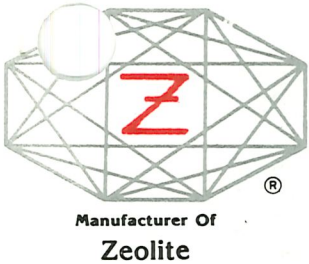
We agree that water analysis concerning the primary standards should be performed by a State approved lab. Secondary standards, unlike primary standards, are usually non-health related. They are more aesthetic in nature like iron, manganese, hardness and pH causing scaling, staining and corrosion of household and mechanical systems.

Our company has taken the position that these must be tested in the field because some of these possess unstable characteristics and can drastically change before they reach the lab. We are recommending that you consider allowing properly trained personnel to perform the field secondary standard tests.

If we rely only on laboratory results it has been our company experience that mistakes occur causing misapplication of water treatment equipment. Our company policy on well water has been, a proper water analysis that must be performed on the job site by properly trained technicians. For the past 20 years in the State of Kansas, we have been conducting educational seminars that have properly trained our representatives to identify these conditions.

We are recommending that the State take this recommendation and we are offering all of our help and experience on these matters to establish a protocol that will be second to none.

Committee Questions



MINERAL-RIGHT, INC.

P.O. Box 427
NorthPark Industrial Park
Phillipsburg, Kansas 67661

Telephone
(913) 543-6571

We would now like to address House Bill #2036 in regards to certification of water conditioning equipment.

We again are elated by the efforts of the State of Kansas concerning consumer protection and water quality. We agree with House Bill #2036 with the exception of lines 43 on page 1 and lines 1 through 5 on page 2.

((1) Each model has been tested and certified by the National Sanitation Foundation, (2) each model has met the performance and materials testing requirements specified in the latest revisions of the applicable standards of the National Sanitation Foundation; and)

Mineral-Right, Inc. and Water-Right, Inc. has met certification requirements in the State of Wisconsin for Kansas manufactured products. Wisconsin was the first State to require certification of water conditioning equipment. We were unable to utilize the National Sanitation Foundation facilities for there was no protocol on the application and testing of zeolite products. For this reason we sought out a State Certified Lab that could develop testing procedures for water conditioning equipment utilizing zeolite. Baumbauch Labs was able to perform tests in their laboratory and in the laboratory at Mineral-Right, Inc. setting a new precedent in the water conditioning industry. Water-Right, Inc. was the first to certify equipment to remove hardness, iron, manganese and pH correction using one piece of equipment. WQA S-100 Standards were met and surpassed with Baumbauch Labs testing and documentation.

With Kansas allowing other established labs and certification facilities to be recognized, the Kansas consumer will be better protected and provided for allowing the consumer the freedom of choice and the assurance of consumer protection.

Baumbach Labs has an ongoing testing and policing program where they indiscriminately remove equipment from the place of the manufacturer and test for compliance of certification on an annual basis.

This is a very complex industry, because of the variety and specialization of equipment and variations of water conditions. No one laboratory can meet all of these requirements.

Therefore, it is our recommendation that NSF not be the only certifying body, but properly approved alternatives be considered. If alternate sources are not approved, consumer protection will not take place and our free enterprise system will be jeopardized. Consumer protection begins with freedom of choice and approved products that have been properly certified. If there is no choice, we have no free enterprise system. Consumers and manufacturers must have a choice.

In seeking to further our expertise and knowledge, we are working with Kansas State University under the direction of Dr. Schlupe for future application and potential of zeolite products.

If we were required to recertify, utilizing NSF, all previous tests and procedures would have to be duplicated. The cost of this duplication would jeopardize the future of Mineral-Right, Inc. and Water-Right, Inc.

We strongly support Certification Legislation correctly serving the citizens of Kansas

Our Question:

On page 3, line 12, will a list of Certified Equipment and their capabilities be provided to consumers?

Committee Response:

Our Question:

We would like to clarify paragraph (c) line 25 through 32 on page 1 in reference to specialized needs, variances and extentions because of the tremendous technical and variety of engineering problems.

Committee Response:

Committee Questions:



May 26, 1989

SAFETY & BUILDINGS DIVISION
Office of Division Codes
and Application
201 East Washington Ave
P. O. Box 7969
Madison, WI 53707

WATER-RIGHT, INC.
GLENN GRUETT
303 SOUTH VICTORIA STREET
APPLETON, WI 54914

Re: Description: WATER TREATMENT DEVICE
Manufacturer: WATER-RIGHT, INC.
Product Name: AQUA GEM WATER SOFTENER
Model Number(s): AG-735, AG-744, AG-1042, AG-1054 AND
AGC-835
AG-735-M, AG-744-M, AG-1042-M,
AG-1054-M AND AGC-835-M

Product File No: 880413

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters ILHR 32 through 34, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of May 1994.

Based on testing data submitted to and reviewed by the department, this approval recognizes that these plumbing products will reduce hardness due to calcium and magnesium cations as specified below:

Model Numbers		Capacity*					
		Rating 1		Rating 2		Rating 3	
AG Series	AG-M Series	Grains	lbs.	Grains	lbs.	Grains	lbs.
AG-735	AG-735-M	7,500	2.9	10,300	4.3	13,400	6.9
AGC-835	AGC-835-M	9,700	3.2	13,800	6.1	19,800	9.3
AG-744	AG-744-M	11,300	3.2	15,800	6.1	18,300	9.3
AG-1042	AG-1042-M	24,100	6.1	26,700	9.3	33,400	15.9
AG-1054	AG-1054-M	32,600	9.3	42,400	15.9	48,800	23.8

* The softener capacity rating is based on grains of hardness removed (as calcium carbonate) while producing soft water between successive regenerations and is related to the pounds of salt required for each regeneration.

15-4



SAFETY & BUILDINGS DIVISION

WATER-RIGHT, INC.
PAGE 2
May 26, 1989

For buildings not served by a municipal water supply, Department of Natural Resources (DNR) written approval may be required prior to installation of this water treatment device in a water supply system to reduce the concentration of a contaminant that exceeds the primary drinking water standards contained in ch. NR 109, Wis. Admin. Code, the enforcement standards contained in ch. NR 140, Wis. Admin. Code, or for a water supply system that is subject to a written advisory opinion by the DNR. For more information contact the DNR Section of Private Water Supply, P.O. Box 7921, Madison, WI 53707, telephone (608) 266-3415.

The Department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Robert G. DuPont, Chief
Section of Product Review and Support
(608) 266-7319

RGD:ljt 7

15-5



May 26, 1989

SAFETY & BUILDINGS DIVISION
Office of Division Codes
and Application
201 East Washington Ave
P. O. Box 7969
Madison, WI 53707

WATER-RIGHT, INC.
GLENN GRUETT
303 SOUTH VICTORIA STREET
APPLETON, WI 54914

Re: Description: WATER TREATMENT DEVICE
Manufacturer: WATER-RIGHT, INC.
Product Name: WATER-RIGHT WATER SOFTENER
Model Number(s): AB-1042, AB-1054 AND AB-1354
AB-1042-M, AB-1054-M AND AB-1354-M
Product File No: 880410

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters ILHR 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of May 1994.

Based on testing data submitted to and reviewed by the department, this approval recognizes that these plumbing products will reduce hardness due to calcium and magnesium cations, and reduce total iron [Fe(II) and Fe(III)] and manganese [Mn(II)], as specified on pages 1 and 2:

HARDNESS REDUCTION

Model Numbers		Capacity*					
		Rating 1		Rating 2		Rating 3	
AB Series	AB-M Series	Grains	lbs.	Grains	lbs.	Grains	lbs.
AB-1042	AB-1042-M	11,100	3.2	19,100	9.3	20,300	12.4
AB-1054	AB-1054-M	22,900	6.1	32,000	12.4	34,800	15.9
AB-1354	AB-1354-M	28,200	9.3	48,300	15.9	60,300	26.5

* The softener capacity rating is based on grains of hardness removed (as calcium carbonate) while producing soft water between successive regenerations and is related to the pounds of salt required for each regeneration.

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WATER-RIGHT, INC.
PAGE 2
May 26, 1989

TOTAL IRON [Fe(II) + Fe(III)] AND MANGANESE [Mn(II)] REDUCTION

Model Numbers		TOTAL IRON [Fe(II) + Fe(III)] AND MANGANESE [Mn(II)]		
		Influent	Effluent	Detection Limit
AB Series	AB-M Series	ppm	ppm	ppm
AB-1042	AB-1042-M	8	BDL	0.3
AB-1054	AB-1054-M	10	BDL	0.3
AB-1354	AB-1354-M	15	BDL	0.3

Other conditions: On waters that are pre-chlorinated or where other pre-oxidation occurs an iron precipitate can form that is too small to be filtered. Concentrations of hardness, total iron and manganese, must be taken into account in the final sizing and regeneration cycle of the products.

For buildings not served by a municipal water supply, Department of Natural Resources (DNR) written approval may be required prior to installation of this water treatment device in a water supply system to reduce the concentration of a contaminant that exceeds the primary drinking water standards contained in ch. NR 109, Wis. Admin. Code, the enforcement standards contained in ch. NR 140, Wis. Admin. Code, or for a water supply system that is subject to a written advisory opinion by the DNR. For more information contact the DNR Section of Private Water Supply, P.O. Box 7921, Madison, WI 53707, telephone (608) 266-3415.

The Department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Robert G. DuPont
Robert G. DuPont, Chief
Section of Product Review and Support
(608) 266-7319

RGD:ljt 1



SAFETY & BUILDINGS DIVISION

May 26, 1989

Office of Division Codes and Application
201 East Washington Ave
P. O. Box 7969
Madison, WI 53707

WATER-RIGHT, INC.
GLENN GRUETT
303 SOUTH VICTORIA STREET
APPLETON, WI 54914

Re: Description: WATER TREATMENT DEVICE
Manufacturer: WATER-RIGHT, INC.
Product Name: WATER-RIGHT WATER SOFTENER
Model Number(s): AR-744, AR-1042 AND AR-1054
AR-744-M, AR-1042-M AND AR-1054-M
Product File No: 880412

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters ILHR 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of May 1994.

Based on testing data submitted to and reviewed by the department, this approval recognizes that these plumbing products will reduce hardness due to calcium and magnesium cations as specified below:

Model Numbers		Capacity*					
		Rating 1		Rating 2		Rating 3	
AR Series	AR-M Series	Grains	lbs.	Grains	lbs.	Grains	lbs.
AR-744	AR-744-M	11,800	3.2	16,100	6.1	18,900	9.3
AR-1042	AR-1042-M	22,000	6.1	26,100	9.3	31,700	15.9
AR-1054	AR-1054-M	37,500	9.3	47,100	15.9	53,300	23.8

* The softener capacity rating is based on grains of hardness removed (as calcium carbonate) while producing soft water between successive regenerations and is related to the pounds of salt required for each regeneration.

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WATER-RIGHT, INC.
PAGE 2
May 26, 1989

For buildings not served by a municipal water supply, Department of Natural Resources (DNR) written approval may be required prior to installation of this water treatment device in a water supply system to reduce the concentration of a contaminant that exceeds the primary drinking water standards contained in ch. NR 109, Wis. Admin. Code, the enforcement standards contained in ch. NR 140, Wis. Admin. Code, or for a water supply system that is subject to a written advisory opinion by the DNR. For more information contact the DNR Section of Private Water Supply, P.O. Box 7921, Madison, WI 53707, telephone (608) 266-3415.

The Department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Robert G. DuPont, Chief
Section of Product Review and Support
(608) 266-7319

RGD:ljt 5



May 26, 1989

SAFETY & BUILDINGS DIVISION
Office of Division Codes
and Application
201 East Washington Ave
P. O. Box 7969
Madison, WI 53707

WATER-RIGHT, INC.
GLENN GRUETT
303 SOUTH VICTORIA STREET
APPLETON, WI 54914

Re: Description: WATER TREATMENT DEVICE
Manufacturer: WATER-RIGHT, INC.
Product Name: WATER-RIGHT WATER SOFTENER
Model Number(s): AW-1042, AW-1054 AND AW-1354
AW-1042-M, AW-1054-M AND AW-1354-M
Product File No: 880411

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters ILHR 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of May 1994.

Based on testing data submitted to and reviewed by the department, this approval recognizes that these plumbing products will reduce hardness due to calcium and magnesium cations, reduce total iron [Fe(II) and Fe(III)] and manganese [Mn(II)], and adjust the pH as specified on pages 1 and 2:

HARDNESS REDUCTION

Model Numbers		Capacity*					
		Rating 1		Rating 2		Rating 3	
AW Series	AW-M Series	Grains lbs.		Grains lbs.		Grains lbs.	
AW-1042	AW-1042-M	7,300	3.2	11,400	9.3	11,800	12.4
AW-1054	AW-1054-M	16,400	6.1	20,700	12.4	22,600	15.9
AW-1354	AW-1354-M	28,300	9.3	33,600	15.9	36,900	21.2

* The softener capacity rating is based on grains of hardness removed (as calcium carbonate) while producing soft water between successive regenerations and is related to the pounds of salt required for each regeneration.

15-10



WATER-RIGHT, INC.

PAGE 2

May 26, 1989

TOTAL IRON [Fe(II) + Fe(III)] AND MANGANESE [Mn(II)] REDUCTION

Model Numbers		TOTAL IRON [Fe(II) + Fe(III)] AND MANGANESE [Mn(II)]		
AW Series	AW-M Series	Influent	Effluent	Detection Limit
		ppm	ppm	ppm
AW-1042	AW-1042-M	8	BDL	0.3
AW-1054	AW-1054-M	10	BDL	0.3
AW-1354	AW-1354-M	15	BDL	0.3

Other conditions: On waters that are pre-chlorinated or where other pre-oxidation occurs an iron precipitate can form that is too small to be filtered. Concentrations of hardness, total iron and manganese, must be taken into account in the final sizing and regeneration cycle of the products.

pH ADJUSTMENT

Model Numbers		Influent	Effluent
AW Series	AW-M Series	pH	pH
AW-1042	AW-1042-M	6	7
AW-1054	AW-1054-M	5	7
AW-1354	AW-1354-M	5	7

For buildings not served by a municipal water supply, Department of Natural Resources (DNR) written approval may be required prior to installation of this water treatment device in a water supply system to reduce the concentration of a contaminant that exceeds the primary drinking water standards contained in ch. NR 109, Wis. Admin. Code, the enforcement standards contained in ch. NR 140, Wis. Admin. Code, or for a water supply system that is subject to a written advisory opinion by the DNR. For more information contact the DNR Section of Private Water Supply, P.O. Box 7921, Madison, WI 53707, telephone (608) 266-3415.

The Department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Robert G. DuPont, Chief
 Section of Product Review and Support
 (608) 266-7319

RGD:ljt 3

15-11

JANUARY 27, 1991

SUBMITTED TO: ENERGY AND NATURAL RESOURCES
COMMITTEE

RE: HOUSE BILL 2036

DRINKING WATER TREATMENT UNITS

HEARING DATE: JANUARY 28, 1991

MY NAME IS FRED LANGMACK. I AM PRESIDENT AND OWNER OF LIQUITECH, INC. OF LENEXA. LIQUITECH IS A KANSAS REGISTERED CORPORATION AND IS HEADQUARTERED IN LENEXA, KANSAS.

I WANT TO EXPRESS MY THANKS TO THE COMMITTEE FOR GIVING ME AN OPPORTUNITY TO APPEAR TODAY TO EXPRESS OUR VIEWS ON WHY HOUSE BILL 2036 SHOULD BE SUBSTANTIALLY REVISED.

BUT I WANT TO MAKE IT VERY CLEAR TO THE COMMITTEE THAT I AGREE WITH THE INTENT OF THE BILL. SOME LEGISLATION IS NEEDED THAT WILL BETTER PROTECT CONSUMERS FROM UNSCRUPULOUS AND IGNORANT SELLERS OF DRINKING WATER TREATMENT DEVICES. UNFORTUNATELY THIS BILL WOULD CREATE MORE PROBLEMS THAN IT WILL SOLVE. IT WILL DO VERY LITTLE TO PROTECT CONSUMERS. BUT IT WILL EFFECTIVELY PUT SMALL, REPUTABLE KANSAS WATER TREATMENT MANUFACTURERS LIKE LIQUITECH OUT OF THE DRINKING WATER TREATMENT BUSINESS.

BEFORE GOING FURTHER I WOULD LIKE TO GIVE YOU A LITTLE OF MY BACKGROUND AND THE REASONS WHY LIQUITECH ENTERED THE DRINKING WATER TREATMENT FIELD.

I GRADUATED WITH A DEGREE IN CHEMICAL ENGINEERING AND BUSINESS ADMINISTRATION FROM THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY IN 1956. I HAVE BEEN ACTIVE IN THE WATER TREATMENT AND POLLUTION CONTROL FIELD SINCE 1966. I HAVE BEEN ACTIVELY ENGAGED IN THE DESIGN, SALE AND SERVICE OF INDUSTRIAL WATER TREATMENT EQUIPMENT IN THE KANSAS AND MISSOURI AREA SINCE 1971. DURING THAT TIME WE HAVE ALWAYS SOLD A FEW HOME WATER TREATMENT UNITS. IN 1986 WE STARTED A SMALL DEPARTMENT WHICH WAS DEVOTED EXCLUSIVELY TO THE HOME MARKET.

OUR INDUSTRIAL CUSTOMERS INCLUDE KANSAS CITY POWER AND LIGHT, ALLIED SIGNAL AEROSPACE (FORMERLY BENDIX), MARION LABS. HALLMARK, KANSAS POWER AND LIGHT, BEECH AIRCRAFT, VULCAN CHEMICALS. EXIDE BATTERY, NORTHERN NATURAL GAS PRODUCTS, EATON CORP, ETC. I LIKE TO

THINK THAT WE HAVE BEEN SUCCESSFUL BECAUSE WE KNOW WHAT WE'RE TALKING ABOUT.

PLEASE NOTE THAT THE EQUIPMENT USED TO TREAT WATER IN INDUSTRY IS NO DIFFERENT IN PRINCIPLE THAN THE EQUIPMENT USED TO TREAT WATER FOR THE HOME. INDUSTRIAL EQUIPMENT IS SIMPLY BIGGER, MUCH BIGGER.

A SEDIMENT FILTER IS STILL A SEDIMENT FILTER

A CARBON FILTER IS STILL A CARBON FILTER

A WATER SOFTENER IS STILL A WATER SOFTENER

A REVERSE OSMOSIS PURIFIER IS STILL A REVERSE OSMOSIS UNIT

FOR EACH COMMITTEE MEMBER'S INFORMATION WE HAVE INCLUDED A LISTING AND BRIEF EXPLANATION OF THE COMMON DOMESTIC AND INDUSTRIAL WATER TREATMENT UNITS ALONG WITH THE COPY OF THIS TESTIMONY.

THE IMPORTANT THING TO BEAR IN MIND HERE IS THAT THIS IS NOT NUCLEAR PHYSICS. THE BASIC PRINCIPLES OF WATER TREATMENT ARE WELL UNDERSTOOD. A PERSON WITH A LITTLE EDUCATION IN BASIC CHEMISTRY AND A LITTLE WATER TREATMENT EXPERIENCE CAN USUALLY LOOK AT A WATER TREATMENT DEVICE AND TELL YOU WHETHER OR NOT THE CLAIMS MADE FOR THAT DEVICE ARE REALISTIC OR ABSURD.

THE REASON LIQUITECH DECIDED TO ENTER THE HOME WATER TREATMENT MARKET IN A ORGANIZED WAY WAS BECUASE I WOULD TALK WITH ACQUAINTANCES WHO HAD BEEN VISITED BY HIGH PRESSURE SALESMEN SELLING HOME WATER TREATMENT DEVICES. THESE SLAM-DUNK SALESMEN WOULD TRY TO SELL THEM A WATER SOFTENER AND A REVERSE OSMOSIS PURIFIER FOR APPROXIMATELY \$4000.00. THESE PEOPLE WOULD ASK ME WHAT I THOUGHT ABOUT IT.

I WOULD TELL THEM THAT THERE WAS NOTHING WRONG WITH THE EQUIPMENT -- IT WAS JUST RIDICULOUSLY OVERPRICED. THEY HAD BEEN FLEEDED BY SOME SLICK SALESMAN.

AFTER THIS WENT ON FOR A WHILE, WE DECIDED TO ENTER THE HOME MARKET IN AN EFFORT TO GIVE CUSTOMERS A PLACE WHERE THEY COULD BUY TOP-NOTCH WATER TREATMENT EQUIPMENT AT REASONABLE PRICES. AFTER SOME STUDY, WE BEGAN ASSEMBLING OUR OWN EQUIPMENT USING NATIONALLY AVAILABLE WATER TREATMENT COMPONENTS FROM MANUFACTURERS WHO PRODUCE HUNDREDS OF THOUSANDS OF COMPONENTS EACH YEAR FOR SALE TO LOCAL ASSEMBLERS LIKE OURSELVES.

THE UNITS WE SELL ARE EQUAL OR SUPERIOR IN QUALITY TO THOSE SOLD BY THE BIG NATIONAL MARKETERS. AND OUR PRICES ARE VERY REASONABLE. WE'RE HAPPY TO GET \$1700 FOR OUR HOME WATER SOFTENER AND REVERSE OSMOSIS UNIT, NOT \$4000.00.

ENCLOSED IN YOUR HANDOUT IS A COPY OF THE KANSAS CITY YELLOW PAGES WHERE OUR LIQUITECH AD APPEARS. NOTE THAT THE THRUST OF THIS AD IS TO APPEAL TO THOSE CONSUMERS WHO ARE TIRED OF THE HIGH PRESSURE SALES TACTICS USED BY OTHERS, AND WHO WOULD LIKE TO TALK TO SOMEONE WHO WILL GIVE THEM THE FACTS. THIS APPROACH HAS BEEN SUCCESSFUL AND OUR HOME WATER TREATMENT DEPARTMENT SLOWLY GROWS EACH YEAR. OF COURSE, THE MAIN PART OF OUR BUSINESS IS STILL OUR INDUSTRIAL CUSTOMERS.

RECENTLY A NEW COMPETITOR HAS JOINED THE FIELD. THE GREAT WATER CO. THEY, TOO, ARE A SMALL KANSAS BASED MANUFACTURER/ASSEMBLER OF HOME WATER TREATMENT EQUIPMENT WHO SELL VERY GOOD EQUIPMENT FOR VERY REASONABLE PRICES -- WITHOUT A LOT OF HIGH PRESSURE HYPE.

THE VERY EXPENSIVE TESTING WHICH HOUSE BILL 2036 REQUIRES IN SECTION 3, ITEMS 1 AND 2 WOULD EFFECTIVELY PUT COMPANIES LIKE THE GREAT WATER CO AND LIQUITECH OUT OF THE HOME WATER TREATMENT BUSINESS. DID THE PEOPLE WHO DRAFTED THIS LEGISLATION REALIZE THAT THE NATIONAL SANITATION FOUNDATION CHARGES APPROXIMATELY \$30,000 TO TEST A HOME REVERSE OSMOSIS UNIT? DID THEY REALIZE THAT EVERY TIME THE NSF CHANGES ITS STANDARDS WE WOULD HAVE TO HAVE OUR UNIT RETESTED?

WE SELL LESS THAN 300 OF THESE UNITS A YEAR. TO ABSORB THIS OUTRAGEOUSLY HIGH COST OF TESTING WOULD MAKE OUR UNITS SO HIGH PRICED PEOPLE WOULD NEVER BUY THEM. ONLY THE COMPANIES LIKE CULLIGAN WHO SELL NATIONWIDE AND WORLDWIDE CAN ABSORB THIS HIGH TESTING COST. IS IT THE INTENT OF THE LEGISLATURE TO TURN THE STATE OF KANSAS INTO AN EXCLUSIVE CULLIGAN FRANCHISE? HAS ANY THOUGHT BEEN GIVEN TO HOW THIS BILL WOULD AFFECT COMPETITION IN THE MARKETPLACE AND INCREASE THE COST OF THESE DEVICES TO KANSAS CONSUMERS?

WE RECOMMEND THAT THIS LEGISLATION BE REDRAFTED. WE WOULD PROPOSE THAT IT BE REWRITTEN TO BETTER DO THE FOLLOWING AND TO DO IT IN SUCH A WAY THAT REPUTABLE BUSINESSES DO NOT HAVE TO PROVE THEIR INNOCENCE. EXPENSIVE TESTING SHOULD ONLY BE REQUIRED WHERE A SELLER KEEPS ON INSISTING THAT HIS PRODUCT DOES THINGS THAT NO EXPERIENCED MEMBER OF THE WATER TREATMENT FIELD THINKS IS POSSIBLE. ALSO, SMALL KANSAS BASED WATER TREATMENT COMPANIES SHOULD NOT BE PUT OUT OF BUSINESS BY IMPOSING UNNECESSARILY HIGH TESTING COSTS ON THEIR OPERATIONS.

WHAT WE PROPOSE AND THE REASONS WE THINK THESE RECOMMENDATIONS WOULD BE BOTH MORE EFFECTIVE AND LESS COSTLY IS AS FOLLOWS.

1.

WE PROPOSE THAT BETTER COORDINATION BE SET UP BETWEEN THE ATTORNEY GENERAL'S OFFICE AND THE DEPARTMENT OF HEALTH AND ENVIRONMENT.

SALES PEOPLE WOULD DO MORE THAN ANYTHING ELSE TO PROTECT CONSUMER INTERESTS IN THE STATE OF KANSAS. BUSINESSES WOULD BE FORCED TO TRAIN THEIR SALESMEN BETTER. EDUCATED SALESMEN WOULD KNOW MORE AND WOULD MAKE FEWER IGNORANT CLAIMS ABOUT THEIR PRODUCTS AND THEY WOULD BE AWARE OF ILLEGAL SALES TACTICS AND OF THE CONSEQUENCES OF THEIR NOT TREATING CUSTOMERS FAIRLY.

PROFESSIONALISM WOULD GROW. CONSUMER CONFIDENCE WOULD RISE. LEGITIMATE BUSINESSES WOULD NO LONGER BE UNDERCUT, AS THEY ARE AT PRESENT, BY UNETHICAL AND IGNORANT WATER TREATMENT EQUIPMENT SELLERS.

4.

WE PROPOSE THAT WATER TREATMENT EQUIPMENT DEALERS, MANUFACTURERS, AND ASSEMBLERS IN THE STATE OF KANSAS BE REQUIRED TO REGISTER THEIR VARIOUS HOME WATER TREATMENT DEVICES WITH THE ATTORNEY GENERAL'S OFFICE AND/OR THE DEPT OF HEALTH AND ENVIRONMENT.

THIS LISTING WOULD INCLUDE THE CONSUMER'S FACT SHEET NOW CALLED FOR IN THE PRESENT VESION OF HOUSE BILL 2036.

IN ADDITION, THE SELLERS WOULD BE REQUIRED TO LIST ALL OF THE INDIVIDUAL COMPONENTS USED IN EACH PRODUCT, THE MANUFACTURER OF THESE COMPONENTS, AND MORE DETAILS CONCERNING THE MATERIALS USED IN THESE COMPONENTS.

THIS REGISTRATION WOULD SERVE TWO PURPOSES:

- A. THESE PRODUCTS LISTINGS COULD BE QUICKLY REVIEWED BY THE ADVISORY BOARD MEMBERS. IF PRODUCT CLAIMS WERE BEING MADE THAT SEEMED UNREALISTIC, THE BOARD COULD REQUEST THE SELLER/MANUFACTURER TO APPEAR AND DEFEND THEIR CLAIMS.

IN THE EVENT NO AGREEMENT WAS REACHED ON THE VALIDITY OF THE CLAIMS , THEN THE ADVISORY BOARD COULD REQUIRE THAT PRODUCT TESTING BE DONE AT THE NSF LAB OR SOME OTHER QUALIFIED LAB.

THE IDEA HERE IS THAT EXPENSIVE LAB TESTING WOULD ONLY BE REQUIRED WHEN SELLERS MAKE CLAIMS WHICH APPEAR TO BE UNREALISTIC TO AN EXPERIENCED, TECHNICALLY TRAINED REVIEW BOARD.

INNOCENT SELLERS WHO DO NOT OVER-PROMOTE THEIR PRODUCTS WOULD NOT BE REQUIRED TO PAY FOR EXPENSIVE TESTING.

- B. THE PRODUCT PERFORMANCE LISTINGS WOULD PROVIDE A WRITTEN BASIS UPON WHICH THE ATTORNEY GENERAL'S OFFICE COULD INITIATE PROSECUTION FOR FALSE SALES CLAIMS.

IN OTHER WORDS, LET THE UNETHICAL SELLERS BE HUNG BY THEIR OWN WORDS. IF THEIR PRODUCT CLAIMS DO NOT MATCH THE APPROVED PRODUCT CLAIMS WHICH THEY HAVE ON FILE WITH THE STATE, THEN THE ATTORNEY GENERAL'S OFFICE HAS GOOD GROUNDS UPON WHICH TO FILE A SUIT.

5.

IF THE LEGISLATURE IN ITS WISDOM DOES ADOPT THE NATIONAL SANITATION FOUNDATION TESTING REQUIREMENT, THEN WE WOULD PROPOSE THAT THE WATER TREATMENT DEVICES MFGD AND ASSEMBLED BY KANSAS BASED COMPANIES BE EXEMPT FROM THIS EXPENSIVE TESTING REQUIREMENT.

UNLIKE OUT OF STATE COMPANIES WHICH ARE OFTEN DIFFICULT TO TRACK DOWN AND WORK WITH, KANSAS MANUFACTURERS AND ASSEMBLERS ARE RIGHT HERE. IF THE ADVISORY BOARD HAS QUESTIONS ABOUT OUR PRODUCT CLAIMS OR ABOUT THE COMPONENTS WE USE, WE ARE READILY AVAILABLE FOR A HEARING. OUR FACILITIES ARE CONVENIENTLY AVAILABLE FOR INSPECTION. OUR OWNERSHIP AND BUSINESS PRACTICES ARE EASILY INVESTIGATED.

IF WE MAKE UNSUPPORTED PRODUCT CLAIMS WE CAN BE QUICKLY PROSECUTED. IF WE DIFFER WITH THE BOARD ON THE VALIDITY OF OUR PRODUCT CLAIMS, THEN THE ADVISORY BOARD COULD INSIST THAT WE SUBMIT OUR PRODUCTS FOR TESTING TO AN APPROVED KANSAS LABORATORY, OR, IN EXTREME CASES, TO THE NSF LAB.

IN OTHER WORDS, LADIES AND GENTLEMEN, PROTECT YOUR KANSAS CONSUMERS BY GIVING THEM A COMPETITIVE MARKETPLACE, A MARKETPLACE WHERE LOCALLY GROWN KANSAS BUSINESSES HAVE A CHANCE TO COMPETE AND TO GROW AND TO DO BUSINESS IN THE TRADITIONAL, ETHICAL KANSAS WAY: WHERE A MAN IS PRESUMED INNOCENT UNTIL HE IS PROVEN GUILTY.

I WOULD LIKE TAKE A MOMENT TO GIVE YOU SOME EXAMPLES OF HOW THE ABOVE PROPOSALS COULD WORK TO PROTECT KANSAS CONSUMERS.

FIRST LET'S CONSIDER SELLERS WHO MAKE UNSUPPORTED AND UNREALISTIC CLAIMS FOR THEIR PRODUCTS.

PLEASE REFER IN YOUR INFORMATION TO THE WATERQUEST LEAFLET INCLUDED IN YOUR COPY OF MY TESTIMONY. WE PICKED THIS GEM UP AT THE HOME SHOW IN KANSAS CITY BARTLE HALL LAST SPRING.

WE FEEL THAT MANY OF THE CLAIMS MADE FOR THIS PRODUCT COULD NOT BE SUBSTANTIATED. THE EDUCATED AND EXPERIENCED PEOPLE ON THE ADVISORY BOARD WE HAVE PROPOSED WOULD ALSO EASILY SPOT THIS AS A PRODUCT WHICH WOULD NEED TO BE DISCUSSED IN MORE DETAIL WITH THE SELLER. IF THE SELLER COULD NOT CONVINCE THE BOARD OF THE VALIDITY OF THESE CLAIMS. THEN THE BOARD COULD FORCE THE SELLER TO HAVE THESE CLAIMS TESTED BY A LOCAL KANSAS LAB, OR, PERHAPS. BY THE NSF LAB.

THE CHANCES ARE THAT THE PROCESS OF HAVING TO LIST THE PRODUCT WITH THE STATE IN THE FIRST PLACE. AND/OR THE PROCESS OF HAVING TO MEET WITH THE ADVISORY BOARD. WOULD CAUSE THE SELLER TO "GET SMART" AND TO LIMIT HIS PRODUCT CLAIMS TO THOSE THAT COULD REASONABLY BE SUPPORTED. SINCE THE ADVISORY BOARD WOULD BE FAMILIAR WITH THE BASIC INGREDIENTS IN THIS TYPE OF FILTER. THE WHOLE COMPLAINT COULD PROBABLY BE WORKED OUT WITHOUT HAVING TO RESORT TO EXPENSIVE

TESTING OR STATE LEGAL ACTION. ALL PARTIES WOULD SAVE MONEY. AND WE MIGHT END UP WITH A SELLER WHO WOULD STILL BE IN BUSINESS. AND WHO WOULD BE DOING A MUCH BETTER JOB OF SERVING KANSAS HOME OWNERS.

THE ABOVE EXAMPLE IS AN EXAMPLE OF A PRODUCT RELATED COMPLAINT. THIS IS THE ONLY AREA WHERE EXPENSIVE NSF LAB TESTING WOULD BE OF REAL HELP. MOST OF THE REAL SCAM ARTISTS AREN'T SO DUMB OR SO IGNORANT AS TO MAKE CLAIMS LIKE THIS.

MOST OF THE REAL PROBLEMS WITH THE SALE OF HOME WATER TREATMENT DEVICES ARE THE RESULT OF

- IMPLIED PRODUCT WARRANTIES AND ENDORSEMENTS
- SCARE SALES TACTICS
- HIGH PRESSURE SALES CLOSING TECHNIQUES

AN EXAMPLE OF A WRONGFUL IMPLIED PRODUCT ENDORSEMENT IS GIVEN FURTHER DOWN ON THE WATERQUEST LEAFLET. THE EPA AND THE FDA DO NOT SAY THAT THIS PRODUCT WILL DO ALL THE THINGS THE SELLER CLAIMS FOR THIS PRODUCT. ALL COMPLIANCE WITH THE EPA AND FDA CODES MEANS IS

THAT THE PRODUCT ITSELF IS PROBABLY NOT A SOURCE OF POLLUTION. IN OTHER WORDS, THE PLASTICS, METALS AND FILTER MEDIAS USED IN THIS PRODUCT ARE NOT LIKELY TO CONTAMINATE THE WATER. BUT THAT IS NO GUARANTEE THAT THE PRODUCT WILL PURIFY THE WATER FLOWING THROUGH IT IN THE WAY THE SELLER CLAIMS ABOVE.

THIS IS A FAIRLY SOPHISTICATED POINT. MOST BUYERS WORKING WITH AN UNSCRUPULOUS OR IGNORANT SALESMAN WILL NOT BE ABLE TO MAKE THE ABOVE DISTINCTION. EVEN IF THEY TOOK A LOT OF TIME TO READ THE WELL INTENTIONED, BUT NAIVE CONSUMER BOOKLET THAT THE AUTHORS OF THE BILL WANT TO INCLUDE WITH THE PRODUCT. THIS IS NOT A PROBLEM THAT WOULD BE TAKEN CARE OF BY NSF PRODUCT TESTING. THIS IS A PROBLEM THAT IS BEST TAKEN CARE OF BY THE STATE PRODUCT LISTING REQUIREMENT, BY THE PROPOSED REVIEW BOARD, AND BY FIRM FALSE ADVERTISING ACTION FROM THE ATTORNEY GENERAL'S OFFICE.

NOW LOOK BACK AT THE YELLOW PAGE COPY WHERE THE LIQUITECH AD APPEARS. NOTE THE AD AT THE TOP OF THE PAGE. NOTE THE PICTURE OF THE CONSUMER LOOKING DIGUSTEDLY AT HIS GLASS OF TAP WATER. READ THE CAPTION:

"DO YOU KNOW WHAT'S IN YOUR TAP WATER?
IF YOU DID IT MIGHT BE HARD TO SWALLOW."

THIS IS A BLATANT EXAMPLE OF SCARE TACTICS. FROM WHAT WE HAVE SEEN, THE LOCAL OUTLET OF THIS NATIONAL COMPANY IS A PRIME VIOLATOR OF GOOD CONSUMER BUSINESS PRACTICES.

IN ONE INSTANCE ONE OF THIS FIRM'S YOUNG SALESMEN TOLD A PROSPECT:

"DO YOU KNOW THAT THE WATER IN KANSAS CITY
KANSAS HASN'T BEEN TESTED IN SIXTY YEARS?"

IF HE WASN'T INTENTIONALLY USING SCARE TACTICS, THEN THE KINDEST THING WE CAN SAY IS THAT THIS YOUNG SALESMAN WAS PROBABLY IGNORANT AND POORLY TRAINED. STATE LICENSING AND CERTIFICATION OF SALES PEOPLE WOULD DO MORE TO ELIMINATE THIS TYPE OF ABUSE THAN NSF TESTING OF THE PRODUCT THEY SELL. THERE IS USUALLY NOTHING WRONG WITH THE PRODUCTS THIS COMPANY SELLS. THE PROBLEM IS THE SCARE SALES TACTICS THEY USE AND THE BRUTAL TECHNIQUES THEY RELY ON TO CLOSE THEIR HIGH PRICED SALES.

IF YOU WANT FURTHER PROOF THAT NSF TESTING WOULD DO LITTLE TO ELIMINATE THIS TYPE OF ABUSE. LOOK AT THE BOTTOM RIGHT HAND CORNER OF THEIR AD. THAT'S AN NSF TESTING SYMBOL. IT MEANS THAT THEIR PRODUCTS HAVE BEEN TESTED BY THE NSF LAB.

WELL, LADIES AND GENTLEMEN, NSF TESTING OF THEIR PRODUCTS DOESN'T SEEM TO BE DOING MUCH TO DISCOURAGE THIS COMPANY FROM USING DUBIOUS SALES PRACTICES. ISN'T IT BECOMING CLEAR THAT HAVING COMPANIES SPEND LITERALLY HUNDREDS OF THOUSANDS OF DOLLARS ON NSF TESTING WOULD

LITTLE TO PROTECT THE KANSAS HOME OWNER?

IN CONCLUSION, WE ASK YOU TO REQUEST A MAJOR REVISION OF THIS BILL BEFORE IT IS SUBMITTED TO THE LEGISLATURE.

THANK YOU.

SUPPLEMENT #1

COMMON TYPES OF HOME WATER TREATMENT EQUIPMENT

SEDIMENT FILTERS

-- THESE FILTERS, COMPOSED USUALLY OF FINE FIBROUS MATERIALS REMOVE UNDISSOLVED SUBSTANCES FROM WATER, SUCH AS SAND, SILT, RUST PARTICLES, DIRT, AND SLIME. THEY DO NOT "PURIFY" WATER OR MAKE IT SAFE TO DRINK. THEY SIMPLY CLEAN THE CRUD OUT OF THE WATER AND MAKE IT CLEAR. IGNORANT CONSUMERS SOMETIMES MISAPPLY THESE TO PRIVATE WELL AND POND WATERS IN THE BELIEF THAT THEY WILL MAKE THE WATER SAFE TO DRINK.

SPECIALIZED CONTAMINANT FILTERS

-- THESE SPECIAL FILTERS CAN BE USED TO REDUCE VARIOUS CONTAMINANTS. THE MOST COMMON OF THESE SPECIAL FILTERS IS THE ACTIVATED CARBON FILTER. THIS FILTER IS VERY EFFECTIVE IN REMOVING CHLORINE FROM WATER. ACTIVATED CARBON ALSO REMOVES ORGANIC CONTAMINANTS, WHICH CAN INCLUDE TRACES OF HERBICIDES AND PESTICIDES WHICH ARE SOMETIMES PRESENT EVEN IN WELL TREATED MUNICIPAL WATER.

OTHER SPECIALIZED CONTAMINANT FILTERS CAN BE CHOSEN TO REMOVE NITRATES, LEAD, HYDROGEN SULFIDE, HEAVY METALS, ETC.

CONSIDERABLE TRAINING AND EXPERIENCE IS REQUIRED TO APPLY THESE FILTERS CORRECTLY, ESPECIALLY TO PRIVATE WATER SUPPLIES. WHERE THEIR USE IS OFTEN MORE OF A HAZARD THAN A BENEFIT.

THE PROBLEM WITH THESE FILTERS IS THAT THEY ARE OFTEN SOLD BY UNTRAINED SALESMEN AND ARE DANGEROUSLY MISAPPLIED.

THE POINT HERE IS THAT A PRODUCT MAY HAVE BEEN TESTED BY THE NSF, BUT IF IT IS USED IN A MANNER FOR WHICH IT WAS NOT INTENDED, THE CONSUMER IS APT TO SUFFER.

THERE IS NO SUBSTITUTE FOR KNOWLEDGABLE, CERTIFIED SALES AND SERVICE PEOPLE.

WATER SOFTENERS

-- WATER SOFTENERS REMOVE CALCIUM AND MAGNESIUM FROM WATER. CALCIUM AND MAGNESIUM ARE USUALLY NOT HARMFUL TO PEOPLE. BUT CALCIUM AND MAGNESIUM IN WATER DO CAUSE SCALE IN PIPES AND WATER HEATERS.

Supplement -

ALSO, CALCIUM AND MAGNESIUM COMBINE WITH SOAPS AND DETERGENTS TO FORM SOAP SCUM IN BATHTUBS, WASHING MACHINES AND DISHWASHERS.

SOFTENING OF THE WATER MAKES SOAP LAST LONGER. APPLIANCES MORE TROUBLE FREE, AND CLEANING EASIER.

BUT A WATER SOFTENER WILL NOT MAKE BAD WATER SAFE TO DRINK. IT WILL NOT REMOVE MOST SMELLS. IT WILL NOT REMOVE LARGE QUANTITIES OF IRON. IN OTHER WORDS, WATER SOFTENERS MUST BE APPLIED CORRECTLY OR THE CONSUMER WILL BE DISSATISFIED OR EVEN ENDANGERED.

THE ENCLOSED LIQUITECH SOFTENER BROCHURE WILL GIVE YOU MORE INFORMATION ABOUT WATER SOFTENERS.

REVERSE OSMOSIS WATER TREATMENT UNITS

-- THESE PRODUCTS ARE THE NEWEST AND MOST COMPLICATED OF THE COMMON WATER TREATMENT DEVICES SOLD TO HOME OWNERS. THEY HAVE ONLY BEEN ON THE MARKET FOR ABOUT TEN YEARS, AND MOST PEOPLE ARE NOT FAMILIAR WITH THEM. AS A RESULT THEY HAVE OFTEN BEEN MISREPRESENTED BY SHADY SALESMEN.

THE UNITS TYPICALLY CONSIST OF A SEDIMENT FILTER, AN ACTIVATED CARBON FILTER, AND A SPECIAL REVERSE OSMOSIS MEMBRANE WHICH REMOVES MOST OF THE MINERALS FROM THE WATER.

REVERSE OSMOSIS UNITS USUALLY MAKE TAP WATER TASTE BETTER. THEY ALSO CAN BE USED TO REDUCE MANY COMMON TRACE CONTAMINANTS FOUND IN TAP WATER TO MAKE IT BETTER THAN TAP WATER. BUT THEY SHOULD NOT BE USED TO "PURIFY" WATER THAT IS LIKELY TO BE UNSAFE TO DRINK, SUCH AS POND WATER.

REPUTABLE SALESMEN WILL CAREFULLY EXPLAIN TO THEIR CUSTOMERS WHAT A REVERSE OSMOSIS UNIT WILL OR WILL NOT DO.

THE ENCLOSED LIQUITECH BROCHURE EXPLAINS MORE ABOUT REVERSE OSMOSIS UNITS.

Water Filtration & Purification Equipment (Cont'd)

INC
 107 Lenexa Ks 469-5375
 *FOR MORE INFORMATION
 See Advertisement This Page

DESCAL A Matic Ind Dist
 and Park 341-5203
 Water Systems 3756 W 95 -649-4620
 Water Purification Systems
 Pure PO Box 413102 KC Mo 753-1117
 *FOR MORE INFORMATION
 See Advertisement Page 1223

Contributor 9870 Quivira Rd 492-2833
 Safety Associates 345-9060
 Safety Associates 661-9848

WATER DOME

ATION 5011 W 57 722-2188
 Dist Overland Park 341-5203

WATER OF KC
 Oak Trfwy 468-7873
 800 383-9287
 *FOR MORE INFORMATION
 See Advertisement This Page

Some businesses may include such words "guarantee", "authorized", "certified", "accredited", as part of their firm name. These may not be intended to imply a specific authorization, certification or accreditation connection with their business. In doubt, ask the business or company for details.

PureEarth Technology Inc
 2914 W 94 Terr 648-0376

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 OZONE TECHNOLOGY (LOCAL MFG)
 563 S 11 342-9436

Purification International Inc
 8686 W 96 642-8686
 Quality Environmental Systems
 612 E 91 444-7878

RAINSOFT OF KANSAS CITY INC
 13208 W 99 888-5444
 *FOR MORE INFORMATION
 See Advertisement This Page

Roger The Plumber 7723 W 81 642-2979
 TSG International
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listings of this classification are continued on next page

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ESTERLINE

Rain Soft

OF KC INC.

DO YOU KNOW
 WHAT YOUR TAP
 WATER CONTAINS?



IF YOU DID
 IT MIGHT BE
 HARD TO SWALLOW.

K.C.'S #1 WATER TREATMENT COMPANY
 RESIDENTIAL - COMMERCIAL - INDUSTRIAL

- TOTAL WATER TREATMENT
- REVERSE OSMOSIS SYSTEMS
- WATER CONDITIONERS
- SODIUM REMOVAL
- WELL WATER
- LEAD, SODIUM & BASIC WATER TESTING



"THE WATER TREATMENT EXPERTS"
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99TH & MARSHALL, LENEXA

GET IN TOUCH WITH YOUR CITY



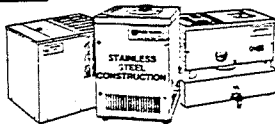
WATER DISTILLERS & OZONE EQUIPMENT



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Liquitech, Inc.

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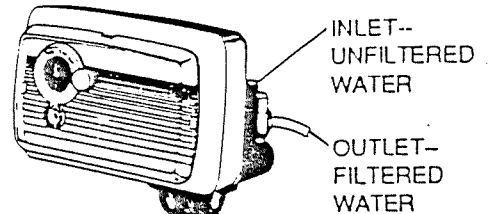
1610

WATERQUEST® WHOLE-HOUSE WATER FILTER COMPONENTS DIAGRAM

© nuWALTERS CO. 1989

ERIE VALVE MECHANICAL-- INCLUDES BYPASS VALVE

TIMER CONTROLS DAILY SELF-CLEANING BACKWASH CYCLE



DISTRIBUTOR BASKET

7 x 35 POLYGLASS HIGH-DENSITY POLYETHYLENE INNERSHELL,
150 PSI

RISER

FREEBOARD

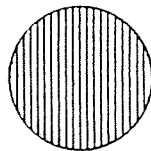
H₂O

KDF MEDIA CREATES A SPONTANEOUS OXIDATION-REDUCTION REACTION WITH UNDESIRABLE ELEMENTS IN WATER. GREATLY REDUCES LEVELS OF FREE CHLORINE AND OTHER TOXIC CONTAMINANTS SUCH AS LEAD, ARSENIC, MERCURY, CADMIUM AND NITRATES. REGULATES pH, KILLS BACTERIA, ALGAE AND FUNGI. LOWERS HARDNESS BY AS MUCH AS 40%. REDUCES CONTENT OF HYDROGEN SULFIDE AND OTHER CHEMICALS THAT CAUSE UNPLEASANT ODORS AND TASTES. CAN BE RECYCLED AFTER SEVERAL YEARS' USE. 42 LBS., DENSITY PACKED

These are not endorsements!

MEETS ALL EPA AND FDA CODES AND THE REQUIREMENTS OF THE DRINKING WATER ACT PL-339 OF JUNE 19, 1986.

? circled claims are highly doubtful!



POLYPROPYLENE 20-MICRON FILTRATION PAD



The EPA & FDA codes simply say the product itself will not contaminate the water. They do not say the product will do anything to the water.

Clean water is the nature of our business.

SIMILAR WELL-WATER UNIT AVAILABLE. MADE SPECIFICALLY FOR THE REMOVAL OF HIGH LEVELS OF HYDROGEN SULFIDE AND OTHER COMMON WELL CONTAMINANTS

Smith Ent., Inc.
P.O. Box 14224
Parkville, MO 64152
(816) 741-9279 (816) 741-4567 FAX

CUMMINGS CONSTRUCTION
WATER QUEST DIVISION OF OVERLAND PARK
(913) 642-4849

WaterQuest Removes What Other Water Filtration Systems Leave Behind.

Scare Tactics

In response to the health hazards tied directly to the drinking of city treated water, and the many questions that continue to arise regarding the cleanliness of non-government regulated bottled water, WaterQuest introduces the most unique water filtration system ever.

Now the millions of harmful chemicals, pesticides, minerals, bacteria and viruses found in common Municipal Water, Well Water, and even Bottle Water can be virtually destroyed--leaving your family with clean water for years of safe drinking, cooking and bathing.

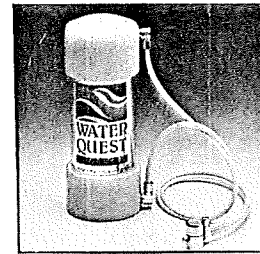
Remember, the responsibility for water quality rests on your shoulders. If you don't take full measures to guarantee that the water your family drinks is safe, no one else will!

**Our revolutionary KDF media --
For water that never leaves
a bad taste in your mouth.**

When your Tap Water tastes and smells funny it's because chlorine initially used to purify it has been left in by your city's main filtration system. The WaterQuest System is specifically designed to remove this irritating chlorine through a spontaneous oxidation process that utilizes one of the greatest breakthroughs ever in the history of water filtration--KDF.

WaterQuest's own KDF media works in conjunction with activated carbon to actively remove chlorine from water long after all other home filtration systems have lost their abilities. In fact, you can expect your WaterQuest Water Filtration products to remove chlorine effectively from tens of thousands of gallons of water! That translates to years of chlorine-free water usage.

Note: For best results, WaterQuest recommends that your system's filter be changed every 3 years.*
* Not necessary for whole home system

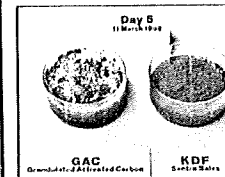
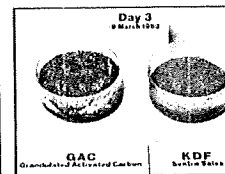
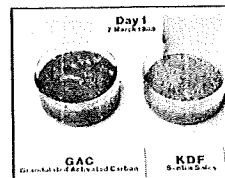


Clean water for a clean bill of health

WaterQuest's unique combination of the revolutionary new KDF media and activated carbon renders the filter bacteriostatic. In plain English, this means bacteria will not grow in the filter, or be present in your drinking water.

No other known filtration method prevents bacteria growth in water better than WaterQuest. The following test clearly illustrates the remarkable characteristics of our system.

Bacteriostatic Lab Test



Ordinary chicken broth is added to two containers. One contains activated carbon alone used in other filtration systems. The second container contains the WaterQuest System (Activated carbon in conjunction with our incredible KDF formulation.)

72 hours later, bacteria is clearly visible in the container containing activated carbon alone. There is no sign of bacteria in the WaterQuest container.

After 5 days, the activated carbon container is teeming with bacteria growth. The WaterQuest container is clear.

Seeing, tasting and feeling the WaterQuest difference is believing

- WaterQuest treated water improves the taste of all steamed and water cooked foods.
- WaterQuest makes concentrated juices, iced tea and coffee taste better. WaterQuest makes baby food formulas and baby's bath water cleaner and safer.
- WaterQuest eliminates harsh chemicals and minerals that dry the skin after bathing and washing.

Choose the WaterQuest System that fits your lifestyle

WaterQuest is totally self-contained and surprisingly compact. Our systems are uniquely designed for the countertop (CT), undercounter (UC), and whole home (WH). There's even a WaterQuest System for recreational vehicles (RV).

Satisfy your family's quest for safe water

For more information on how the WaterQuest System can keep your family safe by providing clean water, call or write your local, authorized WaterQuest dealer today. Remember, water that tastes and smells funny is no laughing matter. Now is the time to get serious about clean water and good health with the WaterQuest System.

10-10-84

Testimony Regarding Kansas House Bill 2036
by Gerald T. Belfor of Teledyne Water Pik
January 28, 1991

Thank you for this opportunity to appear before you and voice Teledyne Water Pik's concerns with House Bill 2036.

As you may be aware, Teledyne Water Pik is a manufacturer of high quality consumer products, including oral irrigators, showers, air filters, and water treatment devices. We distribute these products in all 50 states and internationally, and they are subsequently sold through various retail establishments.

House Bill 2036 would have a dramatic effect on both us and our retailers in Kansas, as well as Kansas consumers. I would like to discuss some of our concerns.

1) Section 3, subsection (1) of the Bill would make it unlawful to, in part, advertise or sell a water treatment unit unless it has been Listed by the National Sanitation Foundation (NSF).

Although we currently have some products Listed by NSF, and are in the approval process on others, we are opposed to this section. The complete NSF listing process is a long and expensive procedure, and most certainly should not be the only accepted mark of performance. We propose alternatively that for a water treatment unit to be sold in Kansas the manufacturer provide either proof of NSF Listing, or have the unit tested to the appropriate NSF standard with data provided from a laboratory acceptable to the state. There are already several laboratories approved to do contaminant removal testing for other states such as Iowa and Wisconsin, and we propose that Kansas allow test data from a "laboratory certified under any state's water treatment regulation."

NSF has established standards for testing products making distinctly different claims. Products making health claims (claims to remove chemical contaminants) are examined under a different set of standards than those making aesthetic claims (claims to improve taste and odor). This approach was taken by NSF in order to recognize the additional consumer protection necessary for products claiming to improve the healthfulness of drinking water. On the basis of this important distinction, we strongly recommend that Kansas only require third party verification for units making health claims.

Acceptance of the above proposals would make the Kansas requirements more in line with other states, such as Iowa and California, while still protecting the consumers of Kansas against invalid product claims.

2) Section 3, subsection (3) would require that water treatment units may not be sold in Kansas unless "each unit has a statement signed and dated by the consumer that he/she has received and read prior to the consummation of a sale the product information package." This package

E+NR
1/28/91
Attachment 17

is to include a consumer information handbook to be prepared by the Kansas cooperative extension service, a certification of product benefit and performance claims, and a manufacturer's performance data sheet.

While Teledyne Water Pik is a strong supporter of the concept of informing the consumer, we have serious reservations about this section. Our consumers consist of many national chains. These chains quite often transship from one area of the country to another, an act over which we have no control. To include the proposed handbook in all products sold in Kansas, therefore, would prove onerous to us in its administration. Further, many local retail outlets, such as Venture or K-Mart, are neither staffed to obtain the proposed signature nor equipped to retain these documents after signature. This requirement, therefore, will result in increased cost to both the retailer and the manufacturer; a cost that will probably be passed on to the consumer. As an alternative, we feel that the requirement to have third party verification of health claims as discussed above is sufficient to assure that the consumer is purchasing a product that does what it says.

We appreciate the opportunity to provide our comments on this proposed legislation. In addition to this testimony, our Larry Smith raised our concerns to Joseph Harkins of the Kansas Water Office in a letter dated November 27, 1990. A copy of that letter is attached and is incorporated by reference.



1730 EAST PROSPECT STREET
FORT COLLINS, COLORADO 80553-0001
(303) 484-1352 TWX (910) 930-9002
FAX (303) 221-8715

November 27, 1990

Mr. Joseph F. Harkins
Director
Kansas Water Office
109 W. 9th Street - Suite 200
Topeka, KS 66612

Subject: Home Water Treatment Devices Subsection
of the Kansas Water Plan FY 1992

Dear Mr. Harkins:

As a reputable manufacturer and marketer of water treatment devices for over fifteen years, Teledyne Water Pik is particularly interested in protecting consumers from scare tactics, unsubstantiated claims and other questionable sales practices. All of Teledyne Water Pik's Instapure[®] faucet mounted water filters are listed with the National Sanitation Foundation and Instapure[®] In-Line Water Filters are currently in the process of obtaining N.S.F. listing.

The Kansas Water Office should be commended for its desire to protect consumers from disreputable sellers of water treatment devices. However, policies which duplicate the intent of existing legislation such as the Kansas Consumer Protection Act will only add unnecessary burden to manufacturers and retailers, and eventually limit the consumer's choices of affordable products that meet their specific needs.

In the FY 1992 plan the Kansas Water Office recommends legislation "to require that the state adopt the standards and certification of the National Sanitation Foundation and to require that product benefit claims and product performance claims relating to home water treatment devices intended for sale in Kansas are certified by the National Sanitation Foundation." Teledyne Water Pik urges the Office to reconsider this recommendation. Even though we are working to obtain N.S.F. listing on all Instapure[®] water filters, we have found the listing "process" to be

Mr. Joseph F. Harkins
November 27, 1990
Page TWO

very slow and extremely expensive. Forcing all manufacturers to list all products with a single laboratory would certainly compound this problem, and would undoubtedly demotivate manufacturers to improve their products or technologies.

The plan also recommends legislation to "require that the product information packages for home water treatment devices intended for sale in Kansas include (1) consumer information handbook prepared by the Cooperative Extension Services, (2) certification of product benefit claims and product performance claims by the National Sanitation Foundation and (3) manufacturer's performance data sheet." Once again, Teledyne Water Pik urges the Office to reconsider this recommendation. Besides the unnecessary added cost of printing these materials which will be passed on to the consumer, the logistical problems for both the manufacturer and the mass retailer would put us both at a competitive disadvantage. For example, when product is sold to a distributor in the midwest, how can the manufacturer be sure that the product sold to a retailer in Kansas contains the proper handbook and performance data sheet? The solution sounds easy; a distinct model for product sold in Kansas. Now multiply this solution times 50 states, and the amount of inventory carried by manufacturers and distributors becomes very difficult to manage and is very expensive. This expense, like all costs of doing business, gets passed on to consumers. Also, imagine the problems with catalog sales of these products in Kansas!

The Cooperative Extension Service will be given the responsibility of developing the consumer information handbook. Even though the cost of printing handbooks will be recovered from manufacturers and dealers, is this department prepared to keep the technical information current, unbiased, and understandable to consumers? Preparing and revising this handbook will undoubtedly be an added burden and cost to the State. Once again, why develop a new booklet when information concerning specific water treatment technologies is already available from sources such as the Water Quality Association.

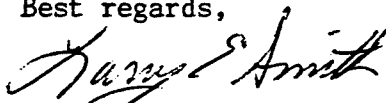
As you can see, Teledyne Water Pik believes there are inherent problems with the plan proposed by the Kansas Water Office. The problems equate to higher prices on limited products for the consumer, and heavy burdens on reputable manufacturers and retailers. Disreputable sellers will continue to ignore the state's new requirements just as they

17-4

Mr. Joseph F. Harkins
November 27, 1990
Page THREE

currently ignore the Kansas Consumer Protection Act. We suggest that the State would see more benefit for the consumer by enforcement of the Kansas Consumer Protection Act than by legislation of new requirements. We thank you for the opportunity to comment and would welcome any future opportunities to assist your policy planning.

Best regards,



Larry E. Smith
Water Treatment
Business Unit Manager

cc: Lowell K. Abeldt
John L. Baldwin
Kyle Bauer
Al Campbell
Jeffery Mason
Michael Conduff
Dr. Lee C. Gerhard, Director,
Kansas Geological Survey
Stanley C. Grant, Secretary
Dept. of Health & Environment
Keith Henley, Chairman
Kansas Corporation Commission
Byron Johnson, General Manager
Water Dist. No. 1 of Johnson Co.
Kenneth F. Kern, Exec. Dir.
State Conservation Commission
Sheila Leiker-Page
Marsha Marshall
Robert L. Meinen, Secretary
Kansas Dept. of Wildlife & Parks
Marvin Odgers
Larry K. Panning
David L. Pope, Chief Engineer,
Div. of Water Resources
Dennis F. Schwartz
Dr. Walter Woods, Director,
Agricultural Experiment Station
Kansas State University
Wayne Zimmerman, Acting Sec.
Dept. of Commerce

LES:mln



Mr. Chairman, Members of the House Energy and Natural Resources Committee.

Thank you for giving me this opportunity of testifying before you today in opposition to House Bill 2036.

My name is Athol Meder. I have a Masters degree in Geochemistry from Johns Hopkins University. I'm President of Pure Water, Inc. of Lincoln, Nebraska. Pure Water, Inc. is a member of the Water Quality Association and I am a past Chairman of the Distillation Committee of the Water Quality Association. I was a member of the task force that developed the National Sanitation Foundation Standard 62 for distillation equipment.

Pure Water was founded in the 1960's and we are a pioneer company in the design, manufacture and marketing of drinking water systems using the distillation process. We fit the category of a small manufacturer. Our products are for residential, commercial and industrial water treatment and are used throughout the U.S.A. and in more than 100 countries abroad. The users of our products include many U.S. Embassies, hospitals, clinics, large corporations and hundreds of thousands of homeowners who have been satisfied customers for many years.

Consumers in Kansas have benefited from our products which are sold through 59 independent dealers and distributors throughout the state.

I am here today in opposition to House Bill 2036 which is now under consideration.

As written, House Bill 2036 is unacceptable, and would have devastating consequences on our business in Kansas as we could not comply with it. It would jeopardize the viability of our dealers and distributors in Kansas and would deprive the consumers of Kansas the opportunity of expressing their freedom of choice in choosing our equipment to improve the quality of their drinking water.

First, I question the basic premise of the need for legislation and regulation of this type and ask that you thoroughly explore the Kansas Consumer Protection Act before enacting additional legislation. Doesn't enforcement of this act protect the citizens of Kansas against abuses which may have occurred in this industry? Speaking as a small businessman, I can tell you the burden of regulation is expensive and stifling and must eventually be passed along to the consumer.

I have many concerns with House Bill 2036 but will concentrate my testimony on two of these:

1) The bill requires that products be tested by the National Sanitation Foundation (NSF) to N.S.F. Standards.

I have a number of concerns relating to this requirement:

While NSF established the standard for the industry, there are numerous qualified laboratories which also test products to N.S.F. standards. Our Company is currently working with independent laboratories that test to N.S.F. standards. If House Bill 2036 is enacted as written, is our investment wasted?

Requiring all manufacturers to test their equipment through NSF does two things: a) it forces us to pay whatever fees NSF demands, rather than giving us the choice to select a competitively priced testing laboratory, b) NSF may not be able to handle all the testing demands made by manufacturers within the time frame for compliance.

18-2

NSF standards are limited in their scope, primarily to health-related claims and some manufacturers, including Pure Water, Inc. make claims for additional performance parameters which are not included in the N.S.F. standards. If House Bill 2036 is enacted as written, what standards and protocols do we use to support these other claims? For example, we have tested our products for the reduction of atrazine. We show a 99% reduction of atrazine from drinking water using distillation. However, atrazine is not included in the N.S.F. standard 62 for distillation. Is it your intention to prevent us from making atrazine reduction claims? Is it your intention to stop us selling our equipment to consumers that have an atrazine problem in their water.

2) Now moving to another part of House Bill 2036 - the requirement for NSF testing of commercial systems.

As written, this bill would cover commercial as well as residential systems. Without knowing the specifics of what abuses lead to the bill we are discussing, I would ask the question "Has there been abuses of commercial water treatment equipment sales?"

In our experience, commercial water treatment equipment is not an impulse buying decision. We have found that the users are well informed of their problem and can specifically identify what their needs are. Typically, when we sell commercial equipment we do a thorough analysis of the customer's needs. This will include a requirement for a complete analysis of the water and many other factors. We spend considerable time evaluating the specific requirements and provide a written proposal for consideration. We warrant the performance of these installations. Included in my handout materials is an End User Survey Form which will give you an idea of the scope of some of the input we require.

Now to the practical side of House Bill 2036 as it relates to commercial equipment.

From my experience, the NSF standards when developed were specifically focused on household systems. Even so, there were significant challenges in

test design. It is my understanding that NSF protocols have not yet addressed the challenges of testing equipment that utilize hundreds or thousands of gallons per day.

Most commercial installations require customization for the specific task at hand. I know of no way that such installations can be tested under laboratory conditions.

Mr. Chairman, Members of the Energy and Natural Resources Committee, as the owner of a small business I ask you to reconsider the need for this legislation. Is the Kansas Consumer Protection Act being used to curb abuses which may occur by a small minority of this industry?

I appeal to you to vote "no" on House Bill 2036.

Pure Water TOTAL™ Bottled Water Plant
ENGINEER FACILITY ANALYSIS SURVEY

For an analysis of your application and our engineering recommendation please complete and return this form. This form must be completed and an analysis of your water provided before we can customize your Pure Water TOTAL™ Bottled Water Plant.

COMPANY BACKGROUND INFORMATION

Date submitted _____

Name _____ Title _____

Company Name _____

Address _____ City _____

State/Province _____ Zip/Postal Code _____ Country _____

Telex _____ Telephone _____ Fax _____

QUESTIONS ON SPECIFIC WATER NEEDS/USE

Specific uses for Pure Water TOTAL™ Bottled Water Plant

- Selling bottled water
- Bottling water for your own institutional use
- Other uses (please specify)

How much water do you currently need per day? _____ gallons _____ litres

How much do you expect to need per day in one year? _____ gallons _____ litres

How much do you expect to need per day in three years? _____ gallons _____ litres

How many hours per day do you need to fill the water produced? _____ hours

Will you bottle the water; use the water in bulk; other _____

If you intend to bottle the water, do you have bottles available to you now?
 do you need assistance procuring bottles?

If you plan to bottle the water, what size of bottles do you plan to utilize?
_____ imperial gallons _____ U.S. gallons _____ litres

Do you plan on filling additional sizes of bottles? yes no. If yes, please indicate additional sizes

Are sample bottles available for us to view at the factory? yes no

How are the bottles currently capped? _____

Are samples of caps available? yes no

What other information do you feel we should know? _____

Do you have a maintenance person who is specifically responsible for your operation? yes no

QUESTIONS RELATING TO YOUR FACILITY

Do you have an existing facility for the Pure Water TOTAL™ Bottled Water Plant? yes no

If yes, please include sketch or blue print indicating the planned location of the bottling plant.

Please see back of sheet for more questions

Continued from side one

If you do not have a facility ready, do you have one under construction or renovation? yes no
If yes, please include a sketch or blue print indicating the planned location of the bottling plant.

Are you aware of any problems with the existing or planned facility? yes no. Please specify.

What are the dimensions of the doors accessing the planned location from outside? _____ ht _____ wd

What is the ceiling height in the factory area you plan to use this equipment in _____ feet _____ metres

Are there any space limitations for the new equipment? yes no. If yes, please explain.

Altitude of site above sea level _____ feet _____ metres

UTILITIES AVAILABLE

Electric Power: Volt _____ Amps _____ Phase _____ Cycles _____

Drain: Diameter _____ Capacity under the worst conditions _____

Water: What is the source of the feed-water? _____ municipal _____ well _____ river _____ other

please specify _____

What is the typical water pressure at the site of the Pure Water TOTAL™ Bottled Water Plant?
Typical _____ Lowest _____ Highest _____

What is the temperature of the water? Summer _____ Winter _____ Average _____

What is the size of the main water pipe in your facility? _____

What is the normal flow from your water pipe? gallons/minute _____ litres/minute _____

What is the feedwater pressure? _____

FEEDWATER ANALYSIS

A complete feed-water analysis must be completed and attached to this questionnaire before the equipment design can be finalized and a final price quoted. You should ask a testing laboratory to conduct the following tests:

Total Dissolved Solids	Mg/l	_____	Temperature	oC	_____
Hardness	Mg/l	_____	Turbidity	NTU	_____
pH	Numbers	_____	Chlorine	gpm	_____
Specific Conductance	µMHOS/cm	_____	Bacteria, E. Coli	MPN/100 ml	_____
Calcium (Ca++)	Mg/l	_____	Fluoride (F-)	Mg/l	_____
Magnesium (Mg++)	Mg/l	_____	Hydrogen Sulfide H2S	Mg/l	_____
Iron Fe++	Mg/l	_____	Chloride Cl-	Mg/l	_____
Manganese Mn++	Mg/l	_____	Sulfate SO4	Mg/l	_____
Sodium Na+	Mg/l	_____	Nitrate NO3	Mg/l	_____
Barium Ba++	Mg/l	_____	Phosphate PO4	Mg/l	_____
Potassium K+	Mg/l	_____	Carbonate CO3	Mg/l	_____
Zinc Zn++	Mg/l	_____	Silica (as SiO2)	Mg/l	_____
Copper Cu++	Mg/l	_____	Alkalinity, Total	Mg/l	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

If you have any questions concerning this questionnaire please contact:

Pure Water, Inc.

3725 Touzalin Avenue

Lincoln, Nebraska 68507, U.S.A.

Telephone (402) 467-9300; FAX (402) 467-9393

18-6

REPORT FOR TESTIMONY CONCERNING
BILL NO. 2036

as presented by

John Scheopner, DBA
Scheopner's Water Conditioning
of
Garden City, Kansas

E+NR
1/28/91
attachment 19

Good Afternoon Honorable Members of the House,

My name is John Scheopner from Garden City. I own and operate an Independent Water Conditioning Business there. I have been in business for 12 years. In those 12 years I have seen competitors come and go. Each time the competitor would come to town and make misleading claims through high pressure sales while charging high prices. In each case these "fly by night" operations would give me a bad name by association. In each case some consumers were taken advantage of by the misrepresentation of their products.

So for these reasons restraints may be necessary. But in each case the free market system usually drove these people out of business. The American Free Market System is the envy of the world. No where in the world or at any other time in history have people had so many choices. But just like driving an automobile there are risks involved. To help curb the risk in driving we wear seat belts, we don't stop driving. In the market place we need some safety measures also but we can not close all businesses because of the risks caused by some.

I'm sure closing down respectable businesses is not your intention. But I feel strongly that there are three items in Bill No. 2036 which need to be addressed or it may cause me to close my doors.

ITEM #1. The National Sanitation Foundation testing and certification. As you can see by the attached estimates, the costs for such testing would run between \$24,000 and \$35,000 for a single piece of equipment. We offer 4 Reverse Osmosis or "Drinking Water" Units. This would run \$100,000 to \$120,000 just for testing. As an Independent Dealer I have no big company to pay this amount for me. My supplier does business in 40 other states. In no other state do they have to be certified. So they will say "John, your a nice guy, but your not worth \$100,000. We can no longer afford to do business in Kansas." I am not at all opposed to testing and certification of equipment. But there must be a less costly way, perhaps a different choice of testing lab should be considered.

ITEM #2. Exactly what types of equipment would be effected needs to be more clearly defined. Reverse Osmosis Systems, Distillers, Carbon Filters or Water Softeners just to name a few, are all attached to the plumbing and all may produce water that is consumed as Drinking Water. Water Softeners should be excluded because they are not sold for the purposes of making health claims for Drinking Water. And what about products such as Britta Water Pitchers, which are not connected to any plumbing fixtures but are often misrepresented by claiming to do more than they are capable of doing.

ITEM #3. Approximately 80% of my business is in rental equipment. I was a Culligan dealer for 10 years. I also have recently purchased assets of a Lindsay dealership. I also have been renting independent equipment for 7 years. Over the years some of my equipment has naturally become a mixture of several brands. What happens when the equipment needs to be upgraded, under this bill it could not be properly certified and therefore becomes obsolete. I could end up with Hundreds of Thousands of Dollars worth of rental equipment (which I currently pay property tax on) that would suddenly be worthless and the cost of replacing would be very prohibitive. The law, hopefully amended as stated above should apply only to new equipment after the date it becomes effective.

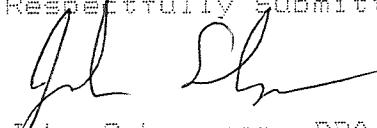
In closing I would like to tell you more about my business. For 12 years I have paid Sales Tax, State Income Tax on both myself and my employees and Property Tax. I have never had a salesperson or telephone solicitation. I have ran several radio ads telling the consumer to beware of misleading salespeople. You will find attached a copy of the ad we will be running in February and March. All my customers have come to me because of there need or desire for better water. I have over 3,000 customers that use my services not once or twice, but as much as 12 times a year.

We provide electronic monitoring on all drinking water units and hardness test kits for all water softeners. The customer may check their equipment to be sure that it is working.

No matter how hard you may try there are two things you can not legislate. They are Common Sense and Morality. That is what we need a Customer with Common Sense and Dealer with a Sense of Morality.

Please don't legislate me out of business. Thank you for your time.

Respectfully Submitted by,



John Scheopner, DBA
Scheopner's Water Conditioning
712 E. Fulton, Box 721
Garden City KS 67846
316-275-5121

TABLE IV

NSF STANDARD 53 - Estimated Testing and Listing Costs

Product: In-Line Carbon Filter with 1.0 gpm Flow Rate

Chemical Reduction Claims

Trichloroethylene
 Volatile Organic Chemicals
 Lead
 Trihalomethanes

Typical Costs

Maximum Capacity claimed 2,000 gallons
 Testing required to 4,000 gallons because system is without monitoring device

Trichlorethylene

Chemical Analysis	\$ 1,100
(8) 500 Gallon Challenge Tanks at \$165 each	\$ 1,320
Daily Operation at \$80 Per Day (3 Day Operation)	\$ 240
Chemical Reduction Base Fee	<u>\$ 900</u>
	\$ 3,560

Volatile Organic Chemicals

Chemical Analysis	\$ 1,600
(8) 500 Gallon Challenge Tanks at \$165 each	\$ 1,320
Daily Operation at \$80 Per Day (3 Day Operation)	\$ 240
Chemical Reduction Base Fee	<u>\$ 900</u>
	\$ 4,060

Trihalomethanes

Chemical Analysis	\$ 1,100
(8) 500 Gallon Challenge Tanks at \$165 each	\$ 1,320
Daily Operation at \$80 Per Day (3 Day Operation)	\$ 240
Chemical Reduction Base Fee	<u>\$ 900</u>
	\$ 3,560

Lead

Chemical Analysis	\$ 350
(8) 500 Gallon Challenge Tanks at \$165 each	\$ 1,320
Daily Operation at \$80 Per Day (3 Day Operation)	\$ 240
Chemical Reduction Base Fee	<u>\$ 900</u>
	\$ 2,810

Application Fees**

Standards Development Fee	\$ 3,000
Annual Listing per Plant	\$ 1,485
Annual Inspection per Plant	<u>\$ 780</u>
Total Application Fees	\$ 5,265

General Performance Tests

Hydrostatic Pressure Test	\$ 110
Hydrostatic Burst Test	\$ 100
100,000 Cycle Pressure Test	\$ 315
Rated Pressure Drop	\$ 125
Rated Service Flow	\$ 120
Filter Media Test	<u>\$ 540</u>
	\$ 1,310

Formulation Review

Assume 12 formulations as follows, no retesting, and a \$275 formula review and processing fee per material.

(1) Housing	\$ 275
(1) Top Closure	\$ 275
(2) Fittings (two formulations)	\$ 550
(4) O-Rings (two formulations)	\$ 550
(1) Media Closures	\$ 275
(1) Carbon Treatment Media	\$ 275
(1) By Pass Valve	\$ 275
(1) Tubing	<u>\$ 275</u>
	\$ 2,750

Chemical Extraction Taste and Odor Test (Complete System)	<u>\$ 1,300</u>
Total Formulation Review Testing	\$ 4,050

Costs for NSF 53 Testing

Trichloroethylene	\$ 3,560
Trihalomethanes	\$ 3,560
Volatile Organic Chemicals	\$ 4,060
Lead	<u>\$ 2,810</u>

\$ 13,990

General Performance	<u>\$ 1,310</u>
Formulation Review And Testing	<u>\$ 4,050</u>
Application Fees	<u>\$ 5,265</u>

Total Costs \$ 24,615

- * Assumes all testing (performance, chemical and toxicological) is completed without repeat and all formulations are reviewed and accepted without repeat.
- ** Note application fees are up front costs which are normally paid before testing begins.

TABLE V

NSF STANDARD 58 - Estimated Testing and Listing Costs

Product: Reverse Osmosis Drinking Water Treatment System with Pre and Post Filtration and Five Gallon Storage Tank

Chemical Reduction Testing*

Total Dissolved Solids (TDS) Challenge Water	\$ 1,115
Chemical Challenge Water	<u>\$ 1,390</u>
	\$ 2,505

Chemical Reduction Claims and Analytical Costs*

Arsenic	\$ 615
Asbestos	\$ 11,000
Barium	\$ 615
Cadmium	\$ 615
Chromium (Hexavalent)	\$ 965
Chromium	\$ 615
Cysts	\$ 1,310
Fluoride	\$ 810
Lead	\$ 615
Mercury	\$ 850
Nitrate	\$ 570
Selenium	\$ 615
TDS	<u>\$ 850</u>
	\$ 20,045

* Testing is per treatment membrane. Testing would double if two membranes are used, e.g., Cellulose Triacetate (CTA) and Thin Film Composite (TFC).

General Performance Tests

Hydrostatic Pressure Test	\$ 110
Hydrostatic Burst Test	\$ 100
100,000 Cycle Pressure Test	\$ 315
Rated Pressure Drop	\$ 125
Rated Service Flow	\$ 120
Filter Media Test	<u>\$ 540</u>
	\$ 1,310

Formulation Rev

Assume formulations review and processing as follows, no retesting, and a \$275 formula per material

	\$ 275
(3) Tubing (two formulations)	\$ 550
(8) Fittings (two formulations)	\$ 550
(2) Filter Heads (one formulations)	\$ 275
(4) O-Rings (one formulation)	\$ 275
(1) Shutoff Valve	\$ 275
(1) Shutoff Diaphragm	\$ 275
(1) Flow Restrictor	\$ 275
(1) Membrane Housing	\$ 275
(1) Tank Bladder	\$ 275
(1) Storage Tank Coating	\$ 275
(1) GAC Media	\$ 275
(1) Sediment Media	\$ 275
(1) RO Membrane	\$ 275
(3) Filter Housing (one formulation)	\$ 275
(1) Faucet	<u>\$ 275</u>
	\$ 4,950

Chemical Extraction, Taste and Odor Test \$ 1,300

Total Formulation Review and Testing \$ 6,250

Application Fees**

Standards Development Fee	\$ 3,000
Annual Listing per Plant	\$ 1,485
Annual Inspection per Plant	<u>\$ 780</u>
Total Application Fees	\$ 5,265

Costs for NSF 58 Testing

Chemical Reduction Testing	\$ 2,505
Chemical Reduction Claims and Analytical Costs	\$20,045
General Performance	\$ 1,310
Formulation Review and Testing	\$ 6,250
Application Fees	<u>\$ 5,265</u>
Total Costs	\$35,375

* Assumes all testing (performance, chemical and toxicological) is completed without repeat and all formulations are reviewed and accepted without repeat.

** Note application fees are up front costs which are normally paid before testing begins.

Caveat Emptor or let the Buyer Beware. Scheopner's Water Conditioning would like to remind consumers to be cautious when shopping for a water treatment system and offers the following advice.

Shop around and compare dealers and equipment. Visit the County Extension Office, they have many informative pamphlets available. Remember if it sounds too good to be true, it probably is and don't be pressured, anything worth having is worth waiting for.

Finally Scheopner's Water Conditioning hopes that you will choose them for all your water treatment needs. They don't promise miracles just good service at a fair price.



Vigolo

Mr. Chairman, and Members of the Kansas House Energy and Natural Resources Committee Members:

Thank you for the opportunity to testify before you in opposition to Kansas House Bill 2036.

As an employee of EcoWater Systems Distributing Company of Topeka, Kansas and speaking on behalf of EcoWater Systems, Inc. of St. Paul Minnesota,

We are opposed to House Bill 2036 for the following reasons:

First, we are strongly opposed to any legislation that grants a single laboratory a monopoly on testing drinking water treatment units. It would severely limit our choice of using many other qualified laboratories around the country for product testing. There is no economic merit to using any other laboratory to test a product that they may be more qualified to test and still have to go through the entire NSF procedure for the State of Kansas.

The testing process at NSF is time consuming and expensive. One current product listing is expected to be completed this Spring after eighteen months and \$25,000 worth of fees. Another project involving one change of material in an already listed product required fifteen months and fees of approximately \$3,500. These charges do not include the annual listing fee under each NSF Standard.

Requiring all products to be tested exclusively by NSF would only add to the costs and time delays previously mentioned.

Secondly, while supporting an effort for increased consumer information, we have serious reservations about developing informational brochures unique to the State of Kansas. Previous attempts by other states to develop such brochures have led to increased costs for the consumer and increased confusion caused by the accuracy of the materials.

Thirdly, Section 4 of the proposed bill requires certification of customized drinking water treatment units that would be extremely difficult and costly to comply with. These units are very complex and designed to meet a specific set of engineering specifications. Existing labs would not have the capability to certify this kind of equipment without tremendous expansion in facilities and costs. In our opinion, inclusion of this type of equipment and the

ECOWATER
S Y S T E M S
DISTRIBUTING COMPANY

J. N. VAN BUREN TOPEKA, KS 66603
(913) 234-5551 FAX: 913-234-3478



addition of aesthetics covered by secondary MCL's are unnecessary and too costly for the purported benefits to be achieved.

We are very supportive of increased consumer education and the general intent of House Bill 2036, but feel that significant changes must be made to remove the anti-competitive features of the current proposal.

Thank you for your consideration.

KANSAS WATER QUALITY ASSOCIATION'S POSITION
AS PRESENTED BY HARRY SINGER
VICE-PRESIDENT OF ESTERLINE RAINSOFT, LENEXA, KANSAS
BILL NO. 2036

1. Line 20 Page 1 : Delete - [or business]
Comments:

2. Line 24 Page 1 : Delete - [or secondary maximum contaminant level "smcl" or guideline.]
Comments:

3. Line 25, 26 & 27 Page 1 : Delete - [used to treat all or part of the water for the facility at the point of entry or any plumbed in or faucet mounted unit]
Add - [designed for personal, family or household use]
Comments:

4. Line 27 Page 1 : Between "which a/claim" Add - [health related]
Comments:

5. Line 42 Page 1 : Between "units/unless" Add - [manufactured after that date]
Comments:

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attachment 21

6. Line 2 Page 2 : Add - [and other laboratories certifying the ability to produce to NSF protocol]

Comments:

7. Line 4 Page 2 : Delete - [latest revisions of the]

Comments:

8. Line 5 Page 2 : Add - [as amended from time to time]

Comments:

9. Line 8 Page 2 : Delete - [consumption] Add - [completion]

Comments:

10. Line 11 Page 2 : Delete - [product benefit claims and]

Comments:

11. Line 16 - 19 Page 2 : Delete - [individual water treatment components need not be certified again if already certified. However, the customized system as a whole needs to be certified for any claims not covered by the individual units] Add - [seller shall provide the consumer with the results of a water analysis from a state certified laboratory which documents the effectiveness of the drinking water treatment unit in reducing the specified contaminants.]

Comments:

12. Line 21 Page 2 : Delete - [layman's] Add - [average
consumer]

Comments:

White's Soft Water Service

218 West 5th P.O. Box 481
Concordia, Ks. 66901



Phone 243-1602

ECOWATER™
S Y S T E M S



Since 1950

I am a replacement for Jim Boyer as a representative of Kansas Water Quality Association.

My name is Joe Strecker from Concordia, Kansas. The name of my business is White's Softer Water Service. This business was established in 1950 by Martin White. My wife and I began purchasing this business eleven and one-half years ago on a twenty year purchase contract. By the time we make the final payment on our business, it will have been in operation for forty-nine years.

We are an independent water conditioning dealer with four different brands (valves) of water softeners, and three different brands of distiller's and two reverse osmosis units used for drinking water. I like the competitiveness and flexibility this creates.

We have two thousand households or businesses who rent our water conditioning equipment on a month to month basis. At three and one-half people per household, that is seven thousand individual people that look to us to take care of their water treatment needs.

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If we would have misrepresented our products or not maintained our rental units properly, we would be out of business, and would not have lasted these forty-one years. White's Soft Water supports or provides income to six families.

If House Bill 2036 is left as it is currently written, it will put me out of business, because none of our equipment is certified or tested by the National Sanitation Foundation. Our equipment is validated or tested by the Water Quality Association. To have only one laboratory for testing is anti-competitive.

The larger water conditioning companies have dealers with territorial boundaries. Therefore most plumbers have to buy equipment from plumbing supply houses.

This law would also prevent the majority of plumbers in the state from selling water softeners. Most plumbing supply companies buy their equipment from smaller manufacturers. All of the larger companies today were small once - again this law is anti-competitive because it takes \$20,000 to \$60,000 to approve one piece of equipment through the National Sanitation Foundation.

I would also ask that House bill 2036 not apply to any water treatment devices manufactured before January 1, 1992. That would be similar to not being able to sell your present automobile which you are driving today.

We as Kansas Water Quality members are not against laws and regulations. We are for laws to protect the citizens of Kansas. We are in favor of educating the consumer through consumer information handbooks, water testing through certified laboratories, and providing test data on water treatment equipment from the Water Quality Association, National Sanitation Foundation, or any other authorized laboratory. Perhaps the customer could sign a statement that they have received and read this information as mentioned in House bill 2036.

Perhaps what is really needed is a law that requires licensing and/or bonding of sales personnel. It is not the manufacturers that make outlandish claims about water treatment devices. Outlandish claims are made by over eager sales personnel.

I know that Kansas Water Quality members hate to hear about somebody being ripped off by a "fly-by-night" water treatment scheme, because it gives the industry a bad image.

Again, we at Kansas Water Quality Association are in favor of laws that protect the citizens of Kansas, not laws that put forty year old businesses "out in the street."

Thank you.

January 27, 1991

The Honorable Ken Groteweil,
Chairman, House Energy and
Natural Resources Committee
State House, Topeka, Kansas 66612

RE: House Bill 2036

Dear Representative Groteweil,

Only on Friday was I made aware of the text of Kansas House Bill No 2036 and the hearings scheduled for Monday, January 28. I regret that I will be unable to offer to testify at this time, but I would like to offer my views based on personal experience.

Durastill, Inc is typical of the manufacturers that have pioneered the development of home water distillers in that even though it is one of the leaders in the field it is a small family-owned company normally employing approximately 25 people in the Kansas City area.

I write as a Kansas Native, a 1948 Mechanical Engineering Graduate of Kansas State University, a former Mechanical Engineering Instructor at Kansas State, and one who has personally designed, manufactured, and marketed home water distillers since 1971. Durastill has contributed both in cash and in the form of my time and expenses (Involving at least six trips to Ann Arbor, Michigan) serving on the committee that developed the NSF Standard 62 for water distillers. Durastill has also contributed directly to the costs of NSF work (not yet completed) on establishing surrogate testing procedures for microbiological effectiveness under Standard 62.

While I am one of those who urged and promoted the development of the NSF standard and feel a certain personal pride in its' existence, I believe it would be wrong to require, as a condition of lawful sale, that every distiller model sold in the state be tested by NSF Laboratories.

While NSF is a well respected testing laboratory, It also has the reputation for being expensive to deal with. Giving one company such a monopoly would seem to be unwise public policy, unfair to other laboratories, the product manufacturers and the consumer.

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The new NSF Standard 62 for distillers is an extremely tough performance standard when compared to NSF standards for other technologies (such as filtration or reverse osmosis). Standard 62 should be considered an ideal rather than an absolute requirement.

In the case of Distillation, the insistence on NSF certification for every distiller sold would eliminate the availability of most of the simpler and least expensive home distillers even though these time-proven models would routinely outperform NSF-approved alternatives from competing technologies.

My general comments are that, unless amended, this bill would impose marketing conditions on the Point of Use water treatment industry that would be unfair unless applied equally to all consumer products. I know that compliance with the bill in its present form would be costly to my company, my Kansas distributor and his dealers, and their potential customers in Kansas.

If invited, I would be glad to testify in detail before your committee.

Sincerely,



Paul S. Giovagnoli, president, Durastill,

January 24, 1991

The Honorable Ken Grotewiel
Chairman, House Energy & Natural Resources Committee
Room 425 South
State House
Topeka, KS 66612

RE: KANSAS BILL NO. 2036 - HOME WATER TREATMENT UNITS

Dear Chairman Grotewiel:

Culligan International is a leading manufacturer of home water treatment products. We have built our reputation over the last 55 years on quality products, quality service and quality customer concern. Culligan distributes products through independent franchised dealers. In Kansas, there are 20 Culligan dealers.

Culligan supports Kansas Bill No. 2036, with the attached modifications. This bill mandates independent third-party validation for drinking water treatment units and product information disclosures to the consumer prior to the close of the sale.

Enclosed please find our recommendations to clarify bill language along with a marked up copy. Our comments reflect what can and cannot be tested by the National Sanitation Foundation.

If you have any questions or require further information, please call me at (708) 205-5755.

Respectfully submitted,

A handwritten signature in blue ink that reads "Donna M. Cirolia".

Donna M. Cirolia
Manager, Industry &
Government Relations

cc: House Energy & Natural Resources Committee
Kansas Water Office

Enclosure

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attachment 24

CULLIGAN INTERNATIONAL
MODIFICATIONS TO THE KANSAS BILL NO. 2036

Section 2. Definitions

- * The phrase "or business" should be deleted. Presently there are no National Sanitation Foundation (NSF) Standards that exist for commercial products.
[Section 2(1)]
- * State should be capitalized since it pertains specifically to Kansas. [Section 2(2)].
- * The phrase "or secondary maximum contaminant level 'smcl' or guideline" should be deleted since the NSF Standards focus on health-related contaminants, specifically the federal primary drinking water regulations. NSF cannot certify for all the SMCLs. [Section 2(2)]
- * The phrase "used to treat all or part of the water for the facility at the point of entry or any plumbed in or faucet mounted unit" should be deleted since it doesn't include pour-through type units. By deleting this phrase, all types of residential water treatment units, including pour-through type units, that claim to reduce contaminants would fall under this bill. To further clarify this definition, the phrase "designed for personal, family or household use" should be added after 'drinking water treatment unit' means any unit . . . [Section 2(4)]

Section 3

- * The phrase "latest revisions" should be deleted and the phrase "as amended from time to time" should be added at the end of this sentence to allow for NSF re-testing when a standard is revised. As this provision is presently worded, there is no amount of reasonable time for a manufacturer to comply with a NSF revised standard. NSF does allow manufacturers a specified period of time to re-submit their products if a standard changes. [Section 3(2)]
- * The phrase "product benefit claims" should be deleted because the NSF cannot certify for such claims, i.e. makes hair shinier. NSF only certifies for performance claims.
[Section 3(3)(b)]

Section 4

- * This section on 'customized drinking water treatment units or systems' should be revised to require a post-installation water analysis performed by a state certified laboratory. There are no NSF standards for customized units.

Section 5

- * The word "layman" should be replaced with "average consumer" since layman is not a well-defined term.

[] del . wording in brackets

January 16, 1990

BILL NO. 2036

BY _____

AN ACT relating to drinking water quality: to validate drinking water treatment units, to require performance data sheet and a consumer information handbook to accompany the sale of such units.

Be it enacted by the Legislature of the State of Kansas:

Section 1. This act shall be known as the Kansas Drinking Water Quality and Treatment Units Act.

Section 2. For the purpose of this Act, unless the context otherwise requires:

(1) "Consumer" means any person who purchases, leases or rents a drinking water treatment unit, not for resale or use in the ordinary course of a trade or business, but for providing drinking water for household [or business] use.

(2) "Contaminant" means any undesirable physical, chemical, radiological or microbiological substance or parameter in water for which there is a federal or state maximum contaminant level "mcl." [or secondary maximum contaminant level "smcl" or guideline.]

(3) "Manufacturer's Performance Data Sheet" means a booklet, document or other printed material containing, at a minimum, the information required by Section 4.

(4) "Drinking water treatment unit" means any unit [used to treat all or part of the water for the facility at the point of entry or any plumbed in or faucet mounted unit] for which a claim is made that it will improve the quality of water by changing or reducing one or more contaminants through mechanical, physical, chemical or biological processes or combinations thereof. For the purposes of this Act each model of a drinking water treatment unit shall be deemed a distinct drinking water treatment unit.

designed for personal, family or household use

(5) "Seller" means a person who is in the business of offering drinking water treatment units for sale, lease or rent to consumers and shall include sales representatives.

(6) "Surrogate" means a chemical compound with similar reaction characteristics as the target contaminant.

Section 3. On and after the effective date of this act, it is unlawful for a seller to sell, lease, rent or advertise the sale, lease or rental of drinking water treatment units unless:

(1) Each model has been tested and certified by the National Sanitation Foundation, Ann Arbor, Michigan, or its other authorized branches.

(2) Each model has met the performance and materials testing requirements specified in the [latest revisions of the] applicable standards of the National Sanitation Foundation, *as amended from time to time.*

(3) Each unit has a statement signed and dated by the consumer that he/she has received and read prior to the [consumption] of a sale the product information package which includes (a) consumer information handbook as specified in Section 6, (b) certification of [product benefit claims and] product performance claims by the National Sanitation Foundation and (c) manufacturer's performance data sheet.

Section 4. In the case of customized drinking water treatment units or systems integrated or assembled on site or designed for site-specific needs, the [individual water treatment components need not be certified again if already certified. However, the customized system as a whole needs to be certified for any claims not covered by the individual units.]

Section 5. The manufacturer's performance data sheet shall be written in [layman's] *average consumer* language and printed with standard or oversized type and shall contain information including, but not limited to:

(1) The name, address and telephone number of the manufacturer, i.e., the person who makes, assembles, fabricates or constructs drinking water units.

Seller shall provide the consumer with the results of a water analysis from a state certified laboratory which documents the effectiveness of the drinking water treatment unit in reducing the specified contaminants.

(2) The name, brand or trademark under which the drinking water treatment unit is sold and its model number.

(3) Performance and test data including, but not limited to:

(a) The list of contaminants certified to be reduced or changed by the drinking water treatment unit;

(b) The test influent concentration level of each contaminant or surrogate for that contaminant;

(c) The percentage reduction, change or effluent concentration of each contaminant or surrogate;

(d) The maximum permissible concentration of a contaminant in water as established in the U.S. Environmental Protection Agency Primary Drinking Water Regulations;

(e) The approximate capacity in gallons;

(f) The period of time during which the unit is effective in reducing or changing the contaminants based upon the contaminant or surrogate influent concentrations used for the performance tests; and

(g) The flow rate, pressure and operational temperature of the water during the performance test.

(4) The following information must be contained on the performance data sheet or may be referenced to the owner's manual or to other material given to the buyer:

(a) Installation instructions; and

(b) The recommended operational procedures and requirements necessary for the proper operation of the drinking water treatment unit including, but not limited to, electrical requirements; maximum and minimum pressure; flow rate;

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temperature limitations; maintenance requirements; and where applicable, replacement frequencies.

Section 6. The consumer information handbook to be provided to the buyer of a drinking water treatment unit shall be prepared by the Cooperative Extension Service, Kansas State University, Manhattan, Kansas, and updated periodically. This handbook will educate the consumer on the necessity, use and effectiveness of drinking water treatment units, the quality of public water supplies in different areas of the state, the rights and responsibilities of the consumer under the Consumer Protection Act and any other pertinent information to safeguard the consumer interest in this matter.

Section 7. It shall be a violation of the Consumer Protection Act (K.S.A. 50-623 *et seq.*) for a seller to sell, lease, rent or advertise the sale, lease or rental of a drinking water treatment unit in this state to a consumer for which false or deceptive claims or representations of removing or changing contaminants are made; to make any representation or claim that the seller's drinking water treatment unit has been approved or endorsed by any agency of the state or the federal government; to sell, lease or rent a drinking water treatment unit which does not comply with section 3 of this act.

Section 8. This act shall take effect and be in force from and after January 1, 1992.

Kansas House Energy and
Natural Resources Committee

01/28/91

Testimony regarding House Bill No. 2036.

Submitted by:
Lee G. Langmack
Advertising Manager and Graphic Designer
LiquiTech, Inc.
13520 W. 107th Street
Lenexa, Kansas 66215
Phone: (913)469-5375
or call 1-800-888-8844
FAX: (913)469-5329

My name is Lee Langmack. I'm employed by LiquiTech, Inc., located in Lenexa, Kansas, a company owned and started by my father, Fred Langmack. I hold the firm's position of Advertising Manager, and as such, I am in charge of producing the firm's business to business communications and sales literature.

Gentlemen, thank you for taking time to hear our testimonies today. I'd like to make a few points about the House Bill No. 2036.

First, the aim and intent of this legislation are on track. There are problems within the Home Water Treatment Industry. Problems which need correcting.

However, this bill fails to identify the real problems that exist, and instead of correcting those problems it would, if passed, hurt the Kansas Consumer and Kansas Small Businessman. If this legislation were to pass in its current form, the Kansas small businessmen, who are assemblers and manufacturers of home water treatment devices, would be forced out of the market, and a monopoly of national franchises would be created. Further, the bill 2036 would undermine any consumer confidence in the industry and all dealers, ethical and unethical alike, would be compromised.

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Attachment 25*

The NSF testing required in Section 3(a) - line 43- would restrict the marketplace and hurt Kansas consumers and small manufacturers alike. I like to call this the "Tucker" provision of the bill, after the movie Tucker, in which a small automobile manufacturer was smashed by the interests of the big Detroit auto-manufacturers, who controlled the market and people in the Federal Government. What this bill conveniently fails to mention is that the costs of NSF testing can range between \$25,000 to \$60,000 dollars or more for each model tested and approved.

This testing would come during tough economic times and would place large financial burden on the small Kansas manufacturer and assembler of home water treatment devices. It would force ethical small businessmen who lack the revenue and volume of sales to absorb such costs right out of business, while the large national franchises, which can afford and already have NSF testing, but which engage in high-pressure sales tactics and have questionable pricing, would be left standing. This legislation, if passed, would leave the Kansas consumer with fewer products to choose from, a less competitive market to hold down pricing, and it is the consumers themselves who would eventually pay for this testing.

Further, this testing would be in large part unnecessary and redundant. All of the home water treatment devices on the market are with minor variations identical. This is because they are all assembled with virtually identical components which come from a handful of component manufacturers. The brand names on these units differ, but chances are that the functional elements that purify the water are virtually if not totally identical. For example, I know from investigation that the Ametek sediment cartridges that LiquiTech uses are the same that Rainsoft uses. They use the same storage tank we use--probably buy it from the same people we do. The high quality Dow FilmTec Reverse Osmosis membrane that we use in both our industrial and home units, and which already meets FDA

requirements for food contact use, is the same membrane used by others. All that changes is how these elements are packaged or put together.

In addition, these components in the vast majority of cases already have NSF or other testing-house approval and certification. The component manufacturers know that such testing and certification is what makes their components sell to the assemblers of home water treatment units. So, in many cases, we'd be sending units that contain NSF-approved components back to NSF, to be tested once again, simply because the unit was assembled in Kansas. This is totally absurd.

And you see, it is here that this bill totally misses the mark.

In a meeting with Michael Jilka, who is an Assistant Attorney General at the Consumer Protection Division of the Attorney General's Office, I learned that the cases referred to in the Kansas Water Office's paper didn't have anything to do with the product's performance claims or how they functioned. In almost all these cases, neither the consumers nor the Attorney General's Office had any doubts or claims that the equipment didn't do what it said it would do. It was the manner in which these units had been sold and the prices that had been charged that had led to prosecution. Most of those cases dealt with phony promotions or tele-marketing scams.

I know from my experience at LiquiTech that these unethical sales practices go on. I need go no further than my competitor's sales literature to cite examples. But you see, NSF testing won't affect this sort of thing in the least. The units are fine - they meet their performance claims. It is the way they are being sold and some of the people selling them that has created a caseload in the Attorney General's Office.

Gentlemen, what needs reform in this industry is the quality and level of training of the dealers and salespeople. It is the national franchise employer who turns over a sales force of forty to fifty people a year and educates them in high-pressure sales tactics, instead of water treatment principles, that needs to be weeded out. It is the pyramid market scheme that eventually has an uneducated night janitor selling a unit intended for municipal water supply to a farmer who's drinking green water out of a pond. Again, NSF testing would not curb this sort of thing.

As regards consumer education, as outlined in this bill, the actions which seek to educate the consumer fall miserably short. The booklet proposed in Section 2(b)- page 2, line 6 of the bill- would in fact further undermine any consumer confidence in this industry. A reputable dealer is now forced by this law to close his sales by hanging a sign around his neck which reads, "My industry has been singled out by the state as having unethical sales practices and you, my buyer, are required to read and sign this before we close the sale."

Gentlemen, let's slow down and think. The time for consumer education is before the sale. It should be done in a way which benefits the reputable dealer, while exposing the unethical salesman. Let me point out that these mechanisms already exist and the smart consumer makes use of them. We have Consumer Reports, the Better Business Bureau, literature from the Federal Government, Trade Organizations like the Water Quality Association, and the Consumer Protection Act. Chances are that the poor consumer-who doesn't do his homework- is not going to be saved at the last minute by Extension Service's little handbook. It's going to wind up one more piece of paper that the high-pressure salesman greases by Joe Consumer, if he even brings it up at all.

Further, where will the State draw the line on other products or industries that also need little handbooks. Shouldn't we have these pamphlets for products that really are dangerous to public health or for other industries where bad sales practices have occurred? Will the State write a booklet on aluminum siding? Will the motorcycle purchaser be required to read and sign a flier that covers the number of deaths and injuries that occur each year as the result of motorcycle riding? Shouldn't the teenager buying a Walkman be required to read and sign a booklet outlining the hazards of hearing impairment?

I don't know what to say about this provision of the bill, except that it is almost Orwellian in nature.

In conclusion, let me say that the House Bill No. 2036 is at best misdirected and naive. At worst, it is a blatant attempt by national franchises operating within Kansas to force Kansas small businessmen out of the market and establish a monopoly. If this legislation is allowed to pass, as it reads now, the Kansas consumer would be compromised, Kansas jobs would be lost, and the State of Kansas would miss out on having any Kansas-based manufacturers in this industry -- which has projected sales of 3 - 4 billion dollars by the year 1994. No business is going to start off operations in a state that would require tremendous start-up costs in the form of testing.

Gentlemen, please don't allow the unethical business practices of a few tarnish the integrity and reputation of the whole water treatment industry. Please don't allow this legislation to pass which would eliminate the jobs of my friends at Liquitech who work as assemblers and installers of home treatment devices.

If I can be of service or answer questions, please feel free to call me.

Thank you for your no vote on House Bill No. 2036.

Lee Abraham Langmack

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