

CHAPTER 2 - BACKGROUND INFORMATION

Findings of Atrazine In Wisconsin Groundwater

Grade A Dairy Farm Well Water Quality Survey

Between August 1988 and February 1989, The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) conducted a survey of water quality at Grade A dairy farm wells in Wisconsin. Well water samples were collected from 534 randomly-selected Grade A dairy farms in Wisconsin and analyzed for many commonly used pesticides and nitrate-nitrogen. Of the 534 wells sampled, 66 contained atrazine above the detection level of 0.15 ppb. Thirty-nine wells contained atrazine above the PAL of 0.35 ppb and 3 wells were above the ES of 3.5 ppb. The average concentration for all wells containing atrazine was 1.0 ppb and the highest concentration found was 19.4 ppb.

From this study, a statistical estimate was made with 95% confidence that between 9 and 15% of Grade A wells in Wisconsin contain atrazine. In the South Central Agricultural Statistics District, which had the highest number of atrazine detects, it was estimated that 19 to 39% of Grade A wells contain atrazine. Dane county had by far the highest number of atrazine detects of any county.

Investigations at farms with contaminated wells did not conclusively identify the source of contamination. Further research is being supported by DATCP to help determine the source and extent of the atrazine contamination. This research is showing that the atrazine in Grade A wells can be the result of both use (non-point source) and improper handling, storage and disposal (point source).

DATCP Groundwater Monitoring Project for Pesticides

This study began in 1985 and utilizes monitoring wells to study pesticides in groundwater next to agricultural fields in highly susceptible areas. For this project, highly susceptible areas are defined as having sandy soil, shallow depth to groundwater, and irrigation. Groups of three monitoring wells have been installed at approximately fifty fields in the Central Sands, lower Wisconsin River valley, and other sandy soil areas of the state. The study was designed so that the findings in the monitoring wells reflect activities on the fields being monitored.

Atrazine has been used at 40 of the test sites and has been detected at 29 of the sites. Deethyl, deisopropyl, and diamino atrazine have been detected at 32, 11 and 5 of the sites, respectively. Some sites have had a detection of a metabolite in the absence of parent atrazine. The total atrazine concentration (the sum of atrazine plus the three metabolites) has exceeded the 3.0 ppb enforcement standard at 16 of the 40 monitoring sites.

This study has helped determine which pesticides need the most attention for groundwater protection purposes. It has also helped to identify which areas of the state are most susceptible to pesticide leaching and to indicate that not all sandy soil areas have the same susceptibility to groundwater contamination. The major conclusions of the study to date are that atrazine is the pesticide that is most frequently detected in groundwater and that the lower Wisconsin River valley is an area particularly susceptible to groundwater contamination by pesticides.

DATCP Rural Well Sampling Program

In the first half of 1990 DATCP conducted a groundwater sampling program in which 2,187 rural well owners had their well water tested for certain agricultural chemicals. The study was conducted in two phases. In the first phase, participating rural well owners submitted a water sample which was analyzed for triazine compounds and nitrate-nitrogen. The triazine tests were performed using an immunoassay screening procedure. The second phase of the program consisted of an official followup sample with a conventional laboratory analysis from any well which had a triazine detection at or above 0.35 ppb or nitrate-nitrogen above 10 ppm. The program was established to provide a service to the public and provide information to DATCP on the occurrence of herbicides in groundwater. The geographic distribution of wells tested was largely determined by the location of rural well owners who participated in the program.

The results of the Rural Well Sampling Program indicate widespread atrazine contamination in groundwater in many areas of Wisconsin. Of the 2,187 wells sampled in phase 1 of the program, the immunoassay screening showed triazine detections in 351 (16%). Two hundred and twenty (10%) were above the PAL for atrazine. Official followup samples were taken at 435 qualifying wells. Of these, 215 had atrazine detects, 127 were above the PAL and 11 were above the ES. Ten followup samples known to contain atrazine were also analyzed for the atrazine metabolites deethyl atrazine and deisopropyl atrazine. All ten samples contained deethyl atrazine and six samples contained deisopropyl atrazine.

The highest frequencies of atrazine detections are in the south central, southwest, and west central regions of the state. As in the Grade A Dairy Well Survey, Dane County had by far the highest number of atrazine detections. Several other counties, such as Columbia, Grant,

Sauk, Iowa, Lafayette, Rock, Walworth, and St. Croix also had a considerable number of relatively widely distributed detections. Most of the detections were at levels near or below the PAL of 0.35 ppb, but a few detects were at levels considerably above the 3.5 ppb ES. The department believes that the atrazine in these rural wells is due to both agricultural use (non-point source) and improper handling, storage and disposal (point source).

Atrazine Metabolite Testing in the Rural Well Survey

As part of the Rural Well Survey, the CIBA-GEIGY Corporation received split samples from the 236 wells that had a triazine finding at or above 0.35 ppb. These samples were analyzed by CIBA-GEIGY for atrazine, deethyl atrazine, deisopropyl atrazine and diamino atrazine. This represents the most rigorous analysis to date for atrazine residues in Wisconsin groundwater for two reasons. First, this was the first analysis of Wisconsin groundwater for diamino atrazine. Second, the 0.1 ppb level of detection for all four analytes is considerably lower than the current levels of detection at the Wisconsin state laboratories.

The results from these 236 wells showed atrazine present in 200 wells, deethyl present in 208 wells, deisopropyl present in 143 wells and diamino present in 195 wells. The average detect concentrations for these same four analytes were 1.1, 0.80, 0.45, and 1.0 ppb, respectively. The average total concentration (for total >0) was 3.0 ppb. These results indicate that 71 wells exceed the new ES for atrazine and metabolites. Only 15 of these wells would have exceeded the old ES for atrazine alone. The newly-discovered presence of diamino atrazine played an important role in the increased number of wells exceeding the ES.

Triazine Testing at the Wisconsin State Laboratory of Hygiene

From April 1991 to the present the Wisconsin State Laboratory of Hygiene (SLOH) has been offering a program for immunoassay testing of triazines on a routine basis. This testing service is available to the public and government agencies. The cost of the test is \$17/sample and the level of detection and reporting is 0.1 ppb. The DNR Water Supply program receives all the triazine results from SLOH and offers a free followup gas chromatography analysis for wells exceeding a threshold concentration.

As of October 1994, SLOH had analyzed over 9,000 well samples by the triazine immunoassay method. Many of these samples have been collected by government agency staff as part of programs such as the Wisconsin Priority Watershed program. Considerable sampling has occurred in priority watersheds including portions of Chippewa, Eau Claire, Clark, Marathon, Wood, Dodge, Columbia, Green Lake, Lafayette, Green, Outagamie,

Winnebago and Waupaca Counties. Most of the remaining triazine samples analyzed by SLOH have been submitted by private citizens interested in having their drinking water tested.

Of the 9,951 triazine sample results that DATCP has received, 3,988 (40%) have shown a detection at or above the 0.1 ppb level of detection. Of these 3,988 detections, 1,674 (42%) have been reported at 0.1 ppb. This trend for pervasive, low-level detects as shown by this testing methodology is not completely understood, but there is no evidence that these detects are false positives.

These data show widespread triazine detections in eight counties with priority watershed testing. The percentage of detections ranges from 34% in Chippewa, Clark and Winnebago Counties to 71% for Lafayette County. The percentage of detects equal to or greater than 0.3 ppb for these same eight counties ranges from 9% for Chippewa County to 37% for Lafayette County. The frequency of detections in these 8 counties with Priority Watersheds that encompass a range of soil and hydrologic conditions indicate that atrazine has the potential to be present in groundwater in all areas of the state where it is used.

DATCP Exceedence Survey

DATCP conducted a study in 1995 to measure changes in pesticide concentrations in wells that had previously exceeded an enforcement standard. One-hundred-twenty-two (122) wells were resampled in this program. Most of these wells are in Atrazine Prohibition Areas. Sampling results for atrazine show that 84% of the wells have decreased in concentration and 16% have increased. Forty-three percent of the wells are still above the atrazine enforcement standard and 57% are now below. Well owners with previous exceedences were interviewed to determine what changes, if any, they had made to their water supplies in response to the exceedence. About 50% of the well owners continue to use their contaminated well and about 25% have installed new wells at an average cost of \$6,300. The remainder drink bottled water, haul water, or use water treatment.

Atrazine Registration Information

"Atrazine" is the accepted common name for the compound 2-chloro-4-ethylamino-6-isopropylamino-s-triazine. This name is recognized by the American National Standards Institute.

Atrazine was initially registered in the United States in 1958 by CIBA-GEIGY for weed control in corn. Additional labels were subsequently approved for other agricultural crops by the U.S. Department of Agriculture (USDA) and since 1970 by the U.S. Environmental Protection Agency (EPA). Atrazine has been registered for control of broadleaf and grass weeds in corn, sorghum, rangeland, sugarcane, macadamia orchards, guava, pineapple, turf grass sod, conifer reforestation, Christmas tree plantations, grass in orchards, proso millet, ryegrass, wheat, grass seed fields and for nonselective vegetation control in chemical fallow and non-crop land. A large portion of atrazine use has been to control weeds on corn and sorghum in the 28 states where these crops are grown. Manufacturers produced about 100-125 million pounds of atrazine in 1980 and about 15-25 million pounds were exported.

A number of herbicides have been registered for use in combination with atrazine. Some of these include alachlor, butylate, metolachlor, paraquat, propachlor, cyanazine, bentazon and simazine. Herbicide mixtures are often used in situations where atrazine alone is not completely effective due to the spectrum of weeds, soil conditions and other environmental factors.

Atrazine Use in Wisconsin

Atrazine Use on Crops

In Wisconsin, use of atrazine on crops has been primarily on corn including field corn, silage corn, sweet corn and seed corn. The Wisconsin Agricultural Statistics Service (WASS) reported that in 1990, 3,700,000 acres of corn for grain, and 160,900 acres of sweet corn were planted. This is a total of 3,860,900 acres of corn planted in these two categories. Data on seed corn acreage are not routinely collected by WASS.

Atrazine controls many annual grass and broadleaf weeds in corn and can be applied preplant (surface applied or incorporated), preemergence, or postemergence. The label application rates for the preplant and preemergence uses of atrazine are dependent on soil texture and organic matter content and, prior to the 1990 label changes and the 1991 Wisconsin Atrazine Rule, ranged from 2 pounds of active ingredient (a.i.)/acre on coarse textured soils to 4 pounds a.i./acre on fine textured soils with higher organic matter.

Atrazine has also been applied with oil as a postemergence treatment. This is a foliar spray and controls weeds by direct contact. The historical label rates for this application were 2

pounds a.i./acre if broadleaf and grass weeds were present or 1 pound if only broadleaf weeds were present.

Another important use of atrazine has been for control of quackgrass, a perennial grass weed that can be a significant problem in corn production. Atrazine can be applied for quackgrass control as either a split or single application. Prior to the 1991 Atrazine Rule and the 1990 label changes, the split applications consisted of 2 pounds of atrazine broadcast in the spring or fall followed by a second application in the spring before, during or after planting. For a single application, 3 to 4 pounds were applied in the fall or spring followed by a plowing 1-3 weeks later.

Wisconsin Pesticide Use Surveys

Several pesticide use surveys have been conducted in Wisconsin to provide information on atrazine use patterns.

1969. This early survey, conducted as part of a Great Lakes initiative with Illinois, Indiana, Michigan and Minnesota, provides information on pesticide use in Wisconsin for the 1969 growing season. In 1969, 1,995,000 acres of corn were treated at least once with herbicides. Herbicide use on corn accounted for 82% of the total crop acreage treated with herbicides. Approximately 10 years after it first started to be used, atrazine was by far the most commonly used herbicide on corn. Atrazine alone and in combination with other herbicides was applied to 91% of the corn acreage receiving a preemergence herbicide treatment and 83% of the acreage treated postemergence. The herbicides that were used in combination with atrazine for preemergence applications were propachlor, linuron, and prometryne. The average rate of atrazine application was 1.5 - 2.0 pounds a.i./acre.

1978. Another major pesticide use survey was conducted in Wisconsin in 1978 by the Wisconsin Agriculture Reporting Service. In 1978, 3,750,000 acres of corn were planted and 3,589,000, or 96%, were treated with herbicides. Atrazine was used on 3,000,000 acres, or 80% of the corn acres planted, making it by far the most commonly used herbicide. The average rate of application was 1.5 pounds atrazine a.i./acre and a total of 4,410,000 pounds of a.i. were used. The South Central, Southwest, and West Central Crop Reporting Districts accounted for the highest number of acres treated with atrazine and the largest quantity of active ingredient applied. Quackgrass and foxtail were the most common target weeds for atrazine applications.

1985. In 1985, a major pesticide use survey was conducted by WASS to collect information needed for managing pesticides in groundwater. In 1985, herbicides were applied to 98% of

the 4,300,000 acres of corn planted. Atrazine was applied to 3,362,000, or 77%, of the corn acreage. The average rate of application was 1.6 pounds of atrazine a.i./acre and the total quantity of atrazine used in the state was 5,165,000 pounds of a.i. The South Central, Southwest, and West Central Crop Reporting Districts were again the areas of highest atrazine use. Quackgrass, foxtail and velvetleaf were the most common target weeds for atrazine applications.

1990. In 1990, a pesticide use survey was conducted by WASS in a manner similar to the 1985 survey so that direct comparisons in pesticide use trends could be made. The number of acres planted to corn in 1990 was 3,700,000, down 14% from 1985. Atrazine was applied to 56% of the corn acres in 1990 compared to 77% in 1985. The average atrazine application in 1990 was 1.43 pounds of atrazine a.i./acre compared to 1.6 pounds in 1985. The overall effect is a 43% reduction in the quantity of atrazine used on corn in Wisconsin from 1985 to 1990.

1991. In March 1992 the United States Department of Agriculture National Agricultural Statistics Service published pesticide use information for the 1991 crop year. This report indicated that atrazine was used on 52% of the corn acres in Wisconsin at an average application rate of 1.04 pounds a.i./acre. A total of 2,048,000 pounds were applied in 1991 in Wisconsin.

1992. In October 1993 the United States Department of Agriculture National Agricultural Statistics Service published pesticide use information for the 1992 crop year. This report indicated that atrazine was used on 59% of the corn acres in Wisconsin at an average application rate of 0.89 pounds a.i./acre. A total of 2,088,000 pounds were applied in 1992 in Wisconsin.

1993. In March 1994 the United States Department of Agriculture National Agricultural Statistics Service published pesticide use information for the 1993 crop year. This report indicated that atrazine was used on 48% of the corn acres in Wisconsin at an average application rate of 0.89 pounds a.i./acre. A total of 1,447,000 pounds were applied in 1993 in Wisconsin.

1994. In March 1995 the United States Department of Agriculture National Agricultural Statistics Service published pesticide use information for the 1994 crop year. This report indicated that atrazine was used on 52% of the corn acres in Wisconsin at an average application rate of 0.84 pounds a.i./acre. A total of 1,626,000 pounds were applied in 1994 in Wisconsin.

1995. In March 1996 the United States Department of Agriculture National Agricultural Statistics Service published pesticide use information for the 1995 crop year. This report indicated that atrazine was used on 51% of the corn acres in Wisconsin at an average application rate of 1.02 pounds a.i./acre. A total of 1,887,000 pounds were applied in 1995 in Wisconsin.

Summary of Trends in Atrazine Use

All sources of information on pesticide use in Wisconsin indicates that the use of atrazine has declined over the past ten years. The two components of pesticide use that are usually considered are the number of acres on which a compound is used and the rate of application, often expressed in pounds of a.i./acre/year. These two components together indicate the quantity of pesticide material used.

It is clear that the number of atrazine-treated acres in Wisconsin declined significantly between 1985 and 1994. The pesticide use surveys conducted by WASS indicate that the percentage of corn acres treated with atrazine decreased from 77% in 1985 to 52% in 1994. It is likely that this downward trend in atrazine use has resulted from an increased awareness of its environmental and carry-over problems and from the implementation of the atrazine rule. It is not clear at this time whether atrazine use will continue to decline or whether it will stabilize at or near current levels.

The average atrazine application rate decreased from 1.6 pounds a.i. in 1985 to 0.84 pounds a.i. in 1994. Opportunities for reducing application rates include using atrazine in combination with other herbicides, applying atrazine in a band over the corn row, and using additional mechanical weed control practices. Many farmers have utilized these strategies to reduce their atrazine application rates. In some cases, however, the atrazine rate that farmers are using is already at a level where further reductions are not possible. In these cases, further reducing atrazine use would mean switching to non-atrazine weed control strategies.

There are several reasons why farmers are reducing or eliminating their use of atrazine. One reason is the concern about carryover of atrazine phytotoxicity into the following year. Most crops that commonly follow corn in a rotation can be damaged by significant atrazine residues remaining in the soil. The importance of this consideration has increased recently as more farmers are realizing the benefits of crop rotation. If the number of years of corn in a dairy rotation is reduced, for example, use of atrazine becomes less desirable because of carryover problems in new alfalfa seedings.

Certain aspects of the Food Security Act of 1985 have also increased the concerns about atrazine carryover problems. To remain in the government program, farmers must set aside a certain portion of their corn base each year to meet soil conservation goals. Due to annual changes in program requirements, it is desirable for a participating farmer to have the flexibility to seed down a corn field for conservation reasons. The possibility of atrazine carryover does not promote this flexibility.

Another major reason for the decline in atrazine use appears to be concern over environmental problems such as groundwater contamination. Several important studies in the last five years have documented atrazine contamination in groundwater and many farmers have responded to this threat by shifting their weed control strategies away from atrazine. These farmers have realized that a water supply contaminated with pesticides is a liability to their family, their farm operation, and their real estate investment.

Other reasons for farmers reducing atrazine use are: the implementation of the Department's atrazine rule, changes in the crops being planted, conversion to lower chemical input farming practices, weed resistance, and poor weed control performance. In reality, an individual farmer's decision to discontinue or reduce the reliance on atrazine may be based on a combination of these reasons. The specific reason that precipitates the final decision probably varies from case to case, but groundwater contamination has certainly been a major factor.

Environmental Fate of Atrazine

Behavior in Soil

The environmental fate - and in particular the leaching potential - of a pesticide applied to the soil is dependent on the characteristics of the environment and the chemical compound. For the chemical itself, the leaching potential is related to its mobility and persistence. Mobility refers to the water solubility and soil adsorbance of the chemical and persistence is measured by the rate of degradation of the compound in the soil. For a pesticide to leach to groundwater as a result of field applications, it must have relatively high mobility and persistence in the soil.

Atrazine has environmental fate characteristics that indicate a high leaching potential and explain its widespread occurrence in groundwater. It is moderately mobile in the soil with a water solubility of 33 ppm and a soil adsorption coefficient of 3.2. (The soil adsorption

coefficient is the ratio of the amount of a pesticide adsorbed to soil to the amount dissolved in water). Persistence in soil is the factor which appears to give atrazine its high leaching potential; literature values indicate a surface soil half-life of 4 to 57 weeks depending on environmental conditions.

Because of the large number of management, environmental and climatic variables involved in the behavior of atrazine in the soil, it is currently impossible to establish a correlation between atrazine application rates and residue levels in groundwater. Even if a correlation could be established, it would only be applicable to the specific site where the research was conducted and to the weather conditions that prevailed during the course of the experiments.

Toxicology of Atrazine

Acute Toxicity

Based on acute animal studies, atrazine is known to be slightly toxic when ingested and only mildly irritating to exposed skin or eyes. Rats exhibit muscular weakness, hypoactivity, ptosis, dyspnea and prostration after oral administration of large amounts of atrazine.

Toxicological Properties - Acute Toxicity to Mammals

<u>Type of Animal Study</u>	<u>Technical Grade Atrazine</u>
Acute Oral LD50 (rat)	1,869 mg/kg
Acute Dermal LD50 (rabbit)	> 3,100 mg/kg
Eye Irritation (rabbit)	Nonirritating
Primary Skin Irritation	Mildly Irritating

Chronic Toxicity

The Wisconsin Department of Health and Family Services (DHFS) selected a 1964 2 year chronic feeding study in dogs with Atrazine 80W for chronic exposure risk assessment determinations. Based on this study, DHFS determined a no observable effect level (NOEL) of 0.35 mg/kg/day. In this study dogs showed increased heart and liver weights at the 3.5

mg/kg/day dosage level. Effects on dogs at the 1,500 ppm feeding level included reduced food intake, decreased body weight and reduced hemoglobin and hematocrit values. Another feeding study with dogs showed EKG alterations such as increased heart rate, decreased P-II values, atrial premature complexes, atrial fibrillations and moderate to severe cardiac lesions at the highest doses of atrazine fed (1,000 ppm).

Reproductive feeding studies (0 to 500 ppm) on rats showed no effects on the reproductive parameters studied. At the highest feeding rate (500 ppm), both parental rats had statistically significant decreases in body weight and food consumption and male rats had statistically significant increases in relative testes weight. The reproductive NOEL and LEL were 10 and 50 ppm respectively (2.5 and 25 mg/kg/day) and the parental NOEL and LEL were 50 and 500 ppm.

Teratological feeding studies on rats showed reduced body weight gain in the first half of the gestation cycle. Similar feeding studies with rabbits showed decreases in body weight and food consumption. Developmental feeding studies on rabbits showed an increase in resorption of the fetus, decreased fetal weights of male and female pups and delayed ossification of fetal appendages.

Lifetime feeding studies in rats are the basis for atrazine being classified by EPA as a class "C" or possible human carcinogen. The class "C" classification is assigned to a compound when there is limited animal evidence to indicate that a compound is a possible carcinogen. This classification can be based on studies which yield limited supportive animal evidence that a compound is carcinogenic. Such evidence can include (a) definitive malignant tumor response in a single species in a well-designed experiment (b) marginal tumor response in flawed studies (c) benign but not malignant tumors with an agent showing no response in a variety of short-term tests for mutagenicity, (d) marginal responses in a tissue known to have high and variable background rate. A compound classified as a Class A carcinogen is considered a known human carcinogen based on sufficient epidemiological evidence.

EPA has established a lifetime Maximum Contaminant Level (MCL) of 3.0 ppb for drinking water.

Wisconsin's Groundwater Standard for Atrazine

Pursuant to the Wisconsin Groundwater Law and based on a recommendation from DHFS, DNR established groundwater standards for atrazine in 1988 in NR 140, Wis. Admin. Code. The DHFS recommendation to DNR for the atrazine groundwater standards is contained in a DHFS document entitled "Public Health Related Groundwater Standards - 1986", Anderson,

Belluck and Sinha, 1988. The ES for atrazine was established at 3.5 ppb and the PAL was set at 0.35 ppb.

In 1991, DHFS recommended to DNR that the atrazine ES standard be lowered to 3.0 ppb to be consistent with the lifetime MCL established by EPA. DHFS also recommended that the groundwater standard for atrazine be modified to include the three chlorinated metabolites deethylatrazine, deisopropylatrazine, and diaminoatrazine. This recommendation was based on information from CIBA-GEIGY Corporation toxicologists indicating that these three chlorinated metabolites had toxicological properties similar to parent atrazine. In response to these recommendations, DNR adopted in January 1992 an ES of 3.0 ppb and a PAL of 0.30 ppb for total chlorinated atrazine residues.

CHAPTER 3 - ENVIRONMENT AFFECTED BY AND POTENTIAL ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

The environment affected by the proposed new and expanded atrazine prohibition areas (PAs) includes portions of: Adams, Columbia, Marathon, Rock, Vernon, and Waupaca Counties. The total land area included in the proposed prohibition areas is approximately 13,000 acres.

No readily available information exists on the number of corn acres planted or the number of acres that have been treated with atrazine in the proposed PAs. It is estimated that approximately half the acres within the proposed PAs are planted to corn and approximately half the corn acres have received atrazine. This amounts to approximately 3,250 acres where atrazine prohibitions would specifically apply. The pre-PA rate of atrazine use on these 3,250 acres could have varied from less than 0.5 to 2.0 pounds/acre.

The proposed rule may lead to increased use of alternative herbicides which may also have environmental implications. Information gathered by the Department has indicated that Bladex (cyanazine), Roundup (glyphosate), Banvel (dicamba) and Accent (nicosulfuron) are among the most important alternative herbicides if atrazine use is reduced or eliminated. Many formulations of alternative herbicides are sprayed in liquid form, but the potential for drift and non-target exposures should not be significantly different than similar formulations of atrazine. Alternative herbicides, due to differences in mobility and persistence, do not generally have as great a potential to contaminate groundwater as atrazine. Also, many other corn herbicides, with the exception of Lasso (alachlor), have less restrictive groundwater ESs than atrazine. Little is known about the metabolites of alternative herbicides.

There is a possibility that some corn growers in the PAs might change their crop rotation as a result of further restrictions on the use of atrazine. Some corn growers are finding that weed problems which traditionally have been controlled by atrazine can be reduced by modifying the number of years of corn and other crops in the rotation. Shortening rotations, or reducing the number of years of certain crops in the rotation, can break the cycle of some weeds and reduce the need for atrazine and other herbicides.

The proposed rule authorizes the repeal of atrazine PAs, but no actual atrazine PAs are proposed for repeal under this rule proposal. This rule proposal establishes a process that could allow for renewed atrazine use in PAs in future years. Renewed atrazine use in the PAs would not be allowed to cause an exceedence of the ES. However, renewed use in a PA could lead to higher levels of atrazine in the groundwater than if the PA continued indefinitely. Renewed use of atrazine in a PA could also reduce the likelihood of compliance with the PAL.

The desired long-term effect of the proposed rule on the environment is a decrease in additional groundwater contamination by atrazine in the proposed PAs. This reduction in additional groundwater contamination would benefit the natural and human environments.

CHAPTER 4 - SIGNIFICANT ECONOMIC EFFECTS OF THE PROPOSED ACTION ON ATRAZINE USERS

(DATCP Analysis of the Technical and Economic
Feasibility of Reducing or Eliminating Atrazine Use)

Background

In 1990 DATCP conducted an extensive analysis of the technical and economic feasibility of reducing or eliminating atrazine use. This analysis consisted of per-acre cost comparisons for weed control strategies that utilized full or "conventional" atrazine rates, reduced atrazine rates, or no atrazine. The weed control strategies -- including various combinations of atrazine, other herbicides, and mechanical weed control -- were developed in consultation with the University of Wisconsin Agronomy Department. These strategies were realistic, but were hypothetical in the sense that they were designed in the office rather than portraying what a particular grower was actually using in the field. Cost comparisons for the various weed control strategies were made for representative cropping systems including continuous corn, corn in rotation with soybeans, and corn in rotation with alfalfa on coarse and medium/fine soil texture groups.

The results of this analysis indicated that the feasibility of reducing or eliminating atrazine use varied considerably across the many different weed control situations facing corn producers. In some situations, such as routine weed control in continuous corn or corn/soybean rotations, reducing or eliminating atrazine seemed reasonable. In other situations, such as in a rescue treatment for grass weeds that escaped the planned weed control program, atrazine played a more important role. This analysis is described in detail in Chapter 4 of the Environmental Impact Statement dated January 1991 that accompanied the original Ag 30.

To supplement the hypothetical analysis conducted in 1990, in 1991 DATCP reviewed all relevant Wisconsin field projects, both research and demonstration, that have compared the effectiveness and profitability of various levels of atrazine use. The information that was reviewed included relevant data from the Profits through Efficient Production Systems (PEPS) program, the UW Nutrient and Pest Management Program, the DATCP Sustainable Agriculture Program, and relevant field trials conducted by the UW Agronomy Department.

The 1991 report also discusses weed control issues on sweet and seed corn in response to comments received during the 1990 public hearings. Sweet and seed corn have unique weed control needs including a potentially greater need for atrazine.

Lastly, the report discusses changes in the herbicide/weed control picture that are influencing the feasibility of reducing or eliminating atrazine use. This review is described in detail in Chapter 4 of the Environmental Impact Statement dated September 1991 that accompanied the 1992 amendments to Ag 30.

Conclusions

ATCP 31.09, in interpreting the Groundwater Law, states that groundwater protection rules "shall be designed, to the extent technically and economically feasible, to minimize the level of the pesticide substance in groundwater and maintain compliance with the preventive action limit for the pesticide substance statewide". From the 1990 Economic Evaluation and the 1991 Update it is possible to make some conclusions on the technical and economic feasibility of reducing or eliminating atrazine use. These conclusions can help determine what additional restrictions on atrazine use are appropriate. Throughout the discussion, it is useful to distinguish between individual uses of atrazine and the specific types of corn.

Technical Feasibility

Technical feasibility is generally considered to address the existence of suitable alternative weed control measures that can replace the individual uses of atrazine. These alternatives could potentially include alternative herbicides and mechanical weed control. Addressing the question of whether there are technically feasible alternatives to atrazine is independent of any economic or cost considerations. For instance, we can consider whether there are technically feasible alternatives to atrazine in specific situations, like routine weed control in continuous corn or for quackgrass control in first year corn after alfalfa sod, independent of cost. Furthermore, it is useful to consider whether the feasibility of reducing atrazine use varies between the various types of corn, such as field, sweet, and seed corn.

Field Corn. The feasibility analysis and discussions with the DATCP Atrazine Technical Committee have indicated that it is technically feasible to reduce or eliminate atrazine use on field corn. Particularly with new herbicide products entering the market and advancing technologies and expertise in mechanical weed control, it is technically possible to handle all

weed control situations in field corn without the use of atrazine. In eliminating the use of atrazine, however, a higher level of management may be needed since weather and other factors make the timing of alternative weed control methods more critical.

Sweet and Seed Corn. The analysis indicated that on sweet corn and seed corn it is technically feasible to reduce atrazine use but it may not be technically feasible to eliminate atrazine use. Sweet and seed corn have unique weed control needs and problems, including fewer registered alternative herbicides and higher potential for herbicide injury, that make atrazine a more integral component of the weed control strategy compared to field corn. There may be certain situations, such as when a rescue treatment is needed, where atrazine is the only technically feasible alternative. Although atrazine use is relatively more important on seed and sweet corn, it appears technically feasible to reduce application rates for routine use to 0.75-1.0 pound atrazine ai/acre.

Economic Feasibility

Economic feasibility goes beyond technical feasibility and considers the cost differences between atrazine and alternative weed control methods. It is possible, as in this analysis, to make per acre weed control cost comparisons for weed control strategies that use full atrazine, reduced atrazine, or no atrazine. It is also possible to use other economic parameters such as direct costs, production costs, or measures of profitability, such as gross margin analysis, to compare various weed control options. Furthermore, both micro and macroeconomic analysis can be conducted to determine the effects of modifying atrazine use on individual farms and the larger farm economy. No one method is specified for use by the Groundwater Law, so it is desirable to consider a range of economic indicators.

The guideline of economic feasibility in the Groundwater Law and ATCP 31 is somewhat difficult to interpret and implement because no specific measure or yardstick of economic feasibility is specified. Whereas it is possible to make cost comparisons between weed control strategies utilizing various levels of atrazine, it is much more difficult to interpret these results and decide what level of additional cost is acceptable in order to protect groundwater. Cost-benefit analysis is a possibility, but is often fraught with bias and was not specifically envisioned in the Groundwater Law. Short of some analytical or quantitative procedure for calculating acceptable or legitimate cost increases, we are left with a process of negotiation, qualitative input from the public, and group consensus to interpret how far it is feasible to further reduce atrazine use.

Field Corn. The 1990 and 1991 economic analyses indicated that it is economically feasible to reduce atrazine use on field corn. A one pound rate of atrazine has been used as a benchmark between higher and lower atrazine use rates in the analysis of the feasibility of reducing atrazine rates in the proposed AMAs. Data from the PEPs program, the NPM demonstrations, the DATCP Sustainable Agriculture Program, and the UW Agronomy field trials have consistently indicated that corn can be produced profitably using one pound or less of atrazine. This conclusion is corroborated by atrazine use patterns throughout Wisconsin. Most growers who continue to use atrazine use low application rates. At application rates of 1 pound or less, atrazine is used in premix products or to "spike" other herbicides in various tank mixes.

A determination of whether it is economically feasible to eliminate atrazine use on field corn depends largely on the extent of cost increase that is acceptable in order to further protect groundwater. Whereas our analysis has indicated that there is no significant cost disadvantage when reducing atrazine rates to one pound or less, it did indicate a potential cost increase when eliminating atrazine and switching to alternative herbicides. The extent of this cost increase depends largely on weed pressure and the extent to which mechanical weed control is practical. Some research indicates that a switch from atrazine to Bladex would lead to little if any cost increase if row cultivation is used. Other sources of data suggest a \$5 - \$10/acre cost increase if atrazine was eliminated in favor of alternative herbicides on field corn. Still other individuals have testified to the department that in a worst case scenario loss of atrazine could lead to a \$20-\$30 cost increase/acre. The decision making process must resolve the question of whether these cost increases are economically feasible to minimize groundwater contamination.

Sweet and Seed Corn. Discussions with the Atrazine Technical Committee and sweet corn producers has indicated that it is economically feasible to reduce atrazine use on sweet corn and seed corn. The use of atrazine premix products, low levels of atrazine in tank mixes with other herbicides, and mechanical cultivation should allow routine atrazine application rates on sweet and seed corn to be reduced to 0.75 - 1.5 pounds ai/acre with a provision to allow additional atrazine use for rescue treatments.

It was previously stated that it is probably not technically feasible to eliminate the use of atrazine on sweet and seed corn. Since this determination has been made, discussion of the economic feasibility of eliminating atrazine use on sweet and seed corn is not relevant.

CHAPTER 5 - PERSONS DIRECTLY AFFECTED BY THE PROPOSED ACTION AND HOW THEY WILL BE AFFECTED

Atrazine Users - Field, Sweet, Seed and Silage Corn Growers

Atrazine users in the prohibition areas (PAs) would be affected by the proposed rule. Growers in PAs would not be able to apply atrazine or mix and load atrazine unless over a spill containment pad constructed in compliance with ATCP 29.151. Portable pads are available at a cost of approximately \$1,800. Construction costs for acceptable concrete pads are estimated to be between \$1,500 and \$3,000. A description of the economic effects of reducing or eliminating atrazine use on corn crops is provided in Chapter 4.

Effects on the Pesticide Industry

Dealers and Distributors of Atrazine

Dealers and distributors of atrazine who service areas of proposed PAs would be affected by a reduction in the sales of atrazine. It is likely, however, that an increase in the sales of alternative herbicides would compensate for the reduction in atrazine sales.

Commercial Applicators of Atrazine

Commercial application services will be required to know where all the atrazine PAs are located to avoid inadvertent applications. Since many growers who cannot or chose not to use atrazine will use alternative herbicides, there should not be a significant reduction in business for commercial applicators. Any impact of the proposed rule on commercial applicators will depend on how they respond to changing weed control practices. Applicators that provide comprehensive services such as weed management consulting and non-atrazine or non-herbicide weed control programs may see an increase in business.

Manufacturers of Atrazine

Nineteen companies are licensed in Wisconsin to sell approximately 47 products containing atrazine. By eliminating atrazine use in the 8 proposed PAs, the proposed rule is expected to result in a small decrease in sales of atrazine products in Wisconsin. The extent of the impact on sales is related to the number of corn acres where atrazine use will be eliminated. The impact of the reduction in atrazine sales in Wisconsin on the national atrazine market will be small unless this action serves as a precedent for other states.

Persons in Affected Areas Who Use Groundwater as a Source of Drinking Water

Groundwater is the source of drinking water for approximately 70% of Wisconsin residents. Residents whose private wells have been sampled and found to contain atrazine and metabolite concentrations above the 3.0 ppb ES have been advised by letter to find an alternative source of water for drinking and cooking purposes. These people incur inconvenience and costs associated with purchasing either bottled water or transporting water from a clean source. In some instances new wells must be installed at a cost ranging from \$1,000 to more than \$15,000. Some of these new wells have been partially funded by the Wisconsin Private Well Compensation Program. Property values can also decline in areas with groundwater contamination. Some homeowners with atrazine in their well above the ES have had to subtract the cost of replacing the well from the selling price of their home.

The proposed PAs in the rule are expected to reduce negative impacts on the quality of groundwater in Wisconsin. Since atrazine use and contamination is more severe in the PAs, greater benefits are expected for residents of these areas. Eliminating atrazine use in the proposed PAs should reduce additional atrazine inputs to wells previously contaminated and decrease the potential for new wells to become contaminated. As a result, health concerns and psychological stress associated with contaminated drinking water should be reduced by the rule. Also, the costs, inconvenience and effort associated with using bottled or other alternative sources of water should be reduced as the levels of atrazine in groundwater decline. Reductions in property values due to groundwater contamination by atrazine should diminish.

The proposed rule authorizes the repeal of atrazine PAs, but no actual atrazine PAs are proposed for repeal under this rule proposal. This rule proposal establishes a process that could allow for renewed atrazine use in PAs in future years. Renewed atrazine use in the PAs would not be allowed to cause an exceedence of the ES. However, renewed use in a PA could lead to higher levels of atrazine in the groundwater than if the PA continued indefinitely. Renewed use of atrazine in a PA could also reduce the likelihood of compliance with the PAL.

Effects on Costs to Consumers

The proposed action is not expected to have a measurable effect on consumer food costs, specifically on corn-derived products. It is unlikely that corn production will decline as a result of decreased atrazine use. Corn prices, which are affected by several market forces including declining federal support programs and other factors such as weather, are not expected to change as a result of the proposed action.

State Agencies

DATCP would administer and enforce the proposed rule. Initially, a significant outreach effort will be needed to inform the regulated community of the new PAs. An increase in compliance and enforcement activities by DATCP will also be needed in the PAs.

Groundwater monitoring will need to continue to allow evaluation of the rule over time. Overall, a significant expenditure of staff, money and analytical services will be required.

DNR has authority to sample wells and is likely to continue these efforts. DHFS is expected to continue its cooperation with DNR and DATCP by offering information on possible health effects of atrazine and issuing health advisories regarding the use of water from contaminated wells.

CHAPTER 6 - ALTERNATIVES TO THE PROPOSED ACTION

No Action Beyond the Existing Rule

Under this option, no new PAs would be delineated and no repeal process for atrazine PAs would be established. The existing Chapter ATCP 30 promulgated in April 1997 would continue to apply to all areas of the state.

Advantages

An advantage of this option is that no additional rulemaking or compliance actions would be required for the Department. Also, from a weed control perspective, growers in the proposed PAs could continue using atrazine at the existing statewide levels.

Disadvantages

The main disadvantage of this option is that it would not provide adequate groundwater protection in the areas where exceedences of the atrazine ES have been found. A lack of response would not meet the department's mandates under the Groundwater Law. If a repeal process for atrazine PAs is not established, atrazine would not be available for weed control in existing PAs where concentrations have dropped and renewed use has been found to be safe.

Repeal Process Using the PAL as the Trigger Level

Under this alternative the repeal process would be the same except that the PAL (0.3 ppb) would be used as the trigger level to qualify a PA for repeal rather than 50% of the ES (or 1.5 ppb). The three consecutive samples from the wells in the PA that previously exceeded the ES would have to drop below the PAL before a PA could be considered for repeal.

Advantages

The main advantage of this alternative is that it would provide an extra margin of safety that the atrazine levels in the PA would remain below the ES. Also, this approach uses an existing groundwater standard rather than creating a new number (50% of the ES).

Disadvantages

The main disadvantage of using the PAL as the trigger level is that it may unreasonably slow down the process under which a PA could be repealed and atrazine use could safely resume. It could take many years for a well previously over the ES to drop below the PAL on three consecutive samples.

Repeal Process Using the ES as the Trigger Level

Under this alternative the repeal process would be the same except 2.9 ppb (just below the ES) would be used as the trigger level to qualify a PA for repeal rather than 50% of the ES (or 1.5 ppb). The three consecutive samples from the wells in the PA that previously exceeded the ES would have to drop below the ES before a PA could be considered for repeal.

Advantages

The advantage of this alternative would be that it would speed up the process by which a PA could be repealed and atrazine use could resume.

Disadvantages

The disadvantage of this approach is that it would not provide an adequate margin of safety to assure that a well previously above the ES had dropped and would remain below the ES. If a well dropped to 2.9 ppb, natural variability in the concentration over time could easily cause it to again exceed the 3.0 ppb ES.

Repeal Process Using One Sample Rather Than Three Consecutive Samples

Under this option wells in a PA that were previously above the ES would only have to have one sample result below the trigger level rather than three.

Advantages

The advantage of this option is that it would streamline the process of qualifying a PA for repeal and would save on well sampling and sample analysis costs.

Disadvantage

The disadvantage of this option is that one sample below the trigger level provides less assurance that the well will remain below the ES over time.

Statewide Prohibition

Under this option atrazine use would be completely eliminated. No atrazine could be used for any crop in any part of the state. A prohibition on atrazine use could be imposed for the 1998 growing season or phased-in over 2-3 years. This is obviously the most restrictive action the Department could take in response to atrazine contamination in groundwater. This action should receive consideration because the NR 140 groundwater ES includes atrazine and the three chlorinated metabolites. Sampling results for atrazine and metabolites have indicated that this new ES is being exceeded much more frequently than the old ES which was based solely on parent atrazine.

Advantages

The biggest advantage of this option is that it would provide the highest degree of groundwater and public health protection from contamination by atrazine. No additional atrazine would be introduced into the environment to further contribute to the existing problem. The aquifers of the state could then begin to cleanse through degradation, dispersion and discharge into surface water. This option would be relatively easy to administer and enforce compared to a system of use restrictions and PAs.

Disadvantages

The main drawback of this option is that it is not clear, based on current use patterns, whether atrazine use has the potential to exceed the ES in all areas of the state. A statewide prohibition

may eliminate atrazine use at low rates in areas where unacceptable contamination would not occur. This could lead to undue economic hardship on certain corn growers.

The Department has estimated the economic impact of eliminating the use of atrazine in Wisconsin. The overall analysis was based on separate analyses for continuous corn, corn in rotation with alfalfa, and corn in rotation with other crops. The results indicated that the total economic cost of prohibiting atrazine use in Wisconsin would be between 1.6 and 10.9 million dollars. This wide range reflects the considerable cost differences between possible alternative weed control strategies. In situations where increased mechanical weed control is feasible, for instance, the analysis indicated that the economic impact could be greatly reduced.

SUMMARY AND CONCLUSIONS

Groundwater monitoring initiatives in Wisconsin have discovered that the herbicide atrazine and its chlorinated metabolites are present in a variety of wells and aquifers around the state. The atrazine in groundwater is believed to have resulted from both use (non-point source) and improper handling, storage and disposal (point source). The distribution of atrazine detections in the state is widespread. Most areas where testing has occurred have shown detections and certain areas have more acute contamination problems.

Regulatory authority for protection of groundwater from pesticides including atrazine falls under the Wisconsin Groundwater Law (Ch. 160, Stats.) and Ch. ATCP 31, Wis. Adm. Code. Both the Groundwater Law and ATCP 31 describe the measures DATCP must take in response to documented groundwater contamination by pesticides. For groundwater contamination above the Enforcement Standard (ES), the department must prohibit the activity or practice which caused or may affect the contamination. For levels of contamination below the ES, the appropriate regulatory response is more complex. ATCP 31.09 states that any substance-specific groundwater protection rule "shall be designed, to the extent technically and economically feasible, to minimize the level of pesticide substance in groundwater and maintain compliance with the preventive action limit for the pesticide substance statewide."

The Atrazine Rule, Ch. ATCP 30, Wis. Adm. Code, was promulgated in March 1991 to protect Wisconsin's groundwater. This rule restricted the use of atrazine on a statewide basis and established one atrazine management area (AMA) and six prohibition areas (PAs) in which the use of atrazine was further restricted or prohibited.

Amendments to the Atrazine Rule promulgated in March 1992 established five additional AMAs and eight additional PAs in areas of the state where groundwater contamination is more acute. The AMAs were located in portions of Columbia, Dane, Green, Lafayette, and St. Croix counties.

Additional amendments to the Atrazine Rule were promulgated in March 1993. These amendments further limited the use of atrazine in the entire state. Specifically, the maximum allowable atrazine application rates for the entire state were lowered to 0.75 pounds/acre for coarse textured soils and 1.0 or 1.5 pounds/acre for medium/fine textured soils. The 1.5 pounds/acre is allowed on medium and fine textured soils if no atrazine was applied the

previous year. An exemption is allowed on seed and sweet corn if a rescue treatment is needed.

Additional amendments were promulgated in 1994, 1995, 1996, and 1997. These amendments created 46 new PAs and enlarged 11 existing PAs where the Enforcement Standard (ES) for atrazine had been attained or exceeded.

Under this proposal, all statewide provisions in the current Atrazine Rule remain in effect. The proposed rule amendments would create two new PAs and enlarge five existing PAs. These actions are based on groundwater sample results for atrazine and metabolites that the Department has received in the last year. The proposed PAs are based on a single well exceeding the ES. The proposed expansion of five existing PAs is due to newly discovered exceedences of the atrazine ES near an existing PA boundary.

This rule proposal also establishes criteria and procedures for the repeal of atrazine PAs where contamination has declined and evidence indicates that renewed use of atrazine will not cause a violation of the ES. Although no actual atrazine PAs are being proposed for repeal under this rule proposal, it would establish a process that could allow for renewed atrazine use in PAs in future years. Renewed use of atrazine in a PA could lead to higher levels of atrazine in groundwater than if the PA continued indefinitely.

The Environmental Impact Statement (EIS) contains: a description and discussion of the proposed rule; background information on atrazine, including information on the use of atrazine and findings of atrazine in groundwater; a discussion of the environment and persons affected by the proposed rule; and the significant economic effects of the proposed action. The EIS also discusses and compares possible alternative actions.

This EIS finds that promulgation of the proposed rule would not create any new adverse environmental impacts from the use of alternative herbicides. Alternative herbicides, due to differences in mobility and persistence, generally have less potential to contaminate groundwater as compared to atrazine. The major effect the proposed rule is expected to have on the environment is a reduction in additional groundwater contamination by atrazine across the state and in the PAs. This reduction in additional groundwater contamination will benefit the natural and human environments. The proposed process to repeal atrazine PAs will not have any impact on the environment because no PAs are being proposed for repeal at this time.

Several alternative regulatory strategies have been considered by DATCP staff. These include taking no action, using different trigger levels to determine when an atrazine PA qualifies for repeal, and prohibiting atrazine use statewide. Eliminating atrazine use statewide may provide greater protection of groundwater than the proposed rule but may also lead to greater economic hardship for farmers who desire to continue using atrazine.

It should be recognized that atrazine use on some sites under this rule may lead to groundwater contamination that exceeds the PAL.

STATE OF WISCONSIN
DEPARTMENT OF AGRICULTURE,
TRADE AND CONSUMER
PROTECTION

By Nicholas J. Neher
Nicholas J. Neher,
Administrator,
Agricultural Resource
Management Division

Dated: 10/15/97

APPENDIX A

SUMMARY OF TESTIMONY PROPOSED AMENDMENTS TO ATCP 30 FOR 1998

INTRODUCTION

The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) held public hearings in Eau Claire, Stevens Point, Appleton, Richland Center and Madison to record oral testimony on proposed 1998 changes to Chapter ATCP 30, Wis. Adm. Code. (Wisconsin's "Atrazine Rule"). DATCP also accepted written testimony until October 8, 1997. DATCP is proposing revisions to two major components of ATCP 30: (1) new/expanded atrazine prohibition areas and (2) new language describing the process for repealing atrazine prohibition areas. The proposed repeal language sets specific conditions and requirements that a prohibition area must meet to be considered eligible for repeal.

Each hearing session started with a ½ hour presentation at which DATCP staff explained the proposed changes and answered questions. Other informational materials available at each hearing included: state and county maps showing all of the data that DATCP has of atrazine concentrations in private water supply wells, maps of each proposed atrazine prohibition area, and a description of the three steps required to repeal an atrazine prohibition area. A number of DATCP groundwater reports, general reference materials, and other information were also available.

A total of 55 people attended the public hearings, of which 28 provided oral testimony and filled out an appearance/opinion card. The other 27 attendees completed cards to register their opinion of the proposed changes to ATCP 30 but did not provide oral testimony. Thirteen people submitted written testimony as part of the hearing process.

A summary of testimony participation is shown in Table 1. A summary of the primary concerns about the proposed pesticide prohibition area repeal process and the specific eligibility requirements are presented in Table 2. A list of the suggested modifications to the proposed ATCP 30 is also attached, followed by a summary of each participant's oral or written testimony.

TESTIMONY SUMMARY

The majority of participants who provided testimony were opposed to some portion of the proposed changes to ATCP 30. Most objected to the idea of repealing atrazine prohibition areas at all, while others had specific concerns about the conditions that a prohibition area must meet to be considered eligible for repeal. No one opposed any specific new or expanded atrazine prohibition areas. The participants who supported the proposed changes to ATCP 30 generally felt that the rule was fair and would adequately protect groundwater from atrazine

SUMMARY OF TESTIMONY PROPOSED AMENDMENTS TO ATCP 30 FOR 1998

contamination. Most people who registered "neither" opposition to nor support for the proposal, or registered as "other", attended the public hearings for informational purposes or worked for the media.

TABLE 1. TESTIMONY SUMMARY

POSITION	PUBLIC HEARINGS (# participants)	WRITTEN TESTIMONY (# participants)	ALL TESTIMONY (# participants)
Support	6	3	9
Oppose	42	5	47
Neither/Other	7	5	12
Totals	55	13	68

PRIMARY CONCERNS ABOUT PROPOSED CHANGES TO ATCP 30

Table 2 summarizes the primary concerns of those presenting oral or written testimony regarding the proposed changes to ATCP 30. In addition to specific comments about the proposed rule, many attendees expressed general concerns about other issues related to pesticide regulation and/or groundwater contamination. These included atrazine groundwater standards, general health effects and costs of pesticides and nitrates in groundwater, and DATCP's need to promote practices that reduce or eliminate pesticide use and prevent groundwater contamination.

**SUMMARY OF TESTIMONY
PROPOSED AMENDMENTS TO ATCP 30 FOR 1998**

TABLE 2. PRIMARY CONCERNS ABOUT CHANGES TO ATCP 30

POSITION	CONCERNS (from most common to least common -- by position)
<p>OPPOSE CHANGES TO ATCP 30</p>	<ul style="list-style-type: none"> • DATCP should <u>never</u> repeal an atrazine prohibition area once the groundwater enforcement standard (ES) has been exceeded. • DATCP should use the preventive action limit (PAL), instead of 50% of the enforcement standard (ES), as the repeal level. 50% of the ES level is <u>not adequate</u> to protect the environment and human health and does not meet the legal requirements of the Groundwater Law (Chapter 160, Wis. Stats.).
<p>SUPPORT CHANGES TO ATCP 30</p>	<ul style="list-style-type: none"> • The proposed ATCP 30 changes represent a fair approach to groundwater protection and pesticide regulation/agricultural development. • 50% of the enforcement standard (ES) is <u>adequate</u> to protect the environment and human health, and to prevent a "yo-yo" effect of prohibition areas coming in and out of existence.

SUGGESTED MODIFICATIONS TO PROPOSED ATCP 30

Several attendees made specific suggestions about how proposed ATCP 30 language should be modified. These suggested modifications are listed below.

Changes to ATCP 30 Rule Language:

- ATCP 30 should explain the process that DATCP will use to re-impose an atrazine prohibition area if atrazine levels in groundwater rise above 50% of enforcement standard.
- ATCP 30 should explain how "credible scientific evidence" from the monitoring project will actually be used in the repeal of atrazine prohibition areas.
- The word "shall" should replace "may" in most instances in which specific eligibility requirements and DATCP actions are described.

SUMMARY OF TESTIMONY PROPOSED AMENDMENTS TO ATCP 30 FOR 1998

- DATCP should consider changing language in 30.31(1) so that the first of three consecutive samples taken at an "exceedance" well is collected 6 months after the last sample date, rather than 6 months after the effective date of the prohibition area.
- DATCP should consider changing language in 30.31(3) so that it does not sound as though "credible scientific evidence" on the effects of renewing atrazine use in prohibition areas already exists.
- DATCP should consider changing language in 30.31(3) to say that renewed atrazine won't cause an exceedance of the enforcement standard at the water table.

PUBLIC HEARING TESTIMONY

Table 3 shows public hearing attendance and indicates the positions taken by hearing participants regarding the proposed ATCP 30 revisions. A summary of each speaker's testimony, by hearing location, follows.

**SUMMARY OF ORAL TESTIMONY
PROPOSED AMENDMENTS TO ATCP 30**

TABLE 3. PUBLIC HEARING ATTENDANCE

POSITION	EAU CLAIRE 9/23/97		STEVENS POINT 9/24/97		APPLETON 9/25/97		RICHLAND CENTER 9/29/97		MADISON 9/30/97		ALL HEARINGS 1997	
	SPOKE	CARD ONLY	SPOKE	CARD ONLY	SPOKE	CARD ONLY	SPOKE	CARD ONLY	SPOKE	CARD ONLY	SPOKE	CARD ONLY
Support	0	0	1	0	0	0	2	1	2	0	5	1
Oppose	0	1	20	18	0	0	0	0	3	0	23	19
Neither/Other	0	3	0	3	0	0	0	0	0	1	0	7
Subtotal	0	4	21	21	0	0	2	1	5	1	28	27
	0 Support 1 Oppose 3 Neither/Other 4 Total Attendees		1 Support 38 Oppose 3 Neither/Other 42 Total Attendees		0 Support 0 Oppose 0 Neither/Other 0 Total Attendees		3 Support 0 Oppose 0 Neither/Other 3 Total Attendees		2 Support 3 Oppose 1 Neither/Other 6 Total Attendees		6 Support 42 Oppose 7 Neither/Other 55 Total Attendees	

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Eau Claire - September 23, 1997

Four people attended the public hearing in Eau Claire on proposed changes to ATCP 30. None of the attendees presented oral testimony, but all filled out appearance cards.

- 1 person registered in opposition to the proposal
- 1 person registered neither for nor against the proposal
- 2 people registered other

Stevens Point - September 24, 1997

A total of 42 people attended the public hearing in Stevens Point on proposed changes to ATCP 30. Of these 42 people:

- 1 spoke in support of the proposal
- 20 spoke in opposition to the proposal
- 18 registered in opposition to the proposal
- 1 registered as neither for nor against the proposal
- 2 registered as "other"

The following is a summary of oral testimony provided at the hearing:

1. Richard Filtz: Mr. Filtz is a long time land-owner in the Town of Stockton. He has had atrazine in his well. He tries not to drink the water, but it is hard to afford an alternative source of water.
2. Beth Jansen: Ms. Jansen is a resident of the Town of New Hope with atrazine in her well. Atrazine has greatly affected her family. She supports the use of the preventive action limit (PAL) for regulatory purposes. She also supports field edge groundwater monitoring for atrazine paid for by agricultural interests.
3. Edward Seefelt: Mr. Seefelt testified for himself and his wife Mary Seefelt who could not attend the hearing. He is opposed to the proposed change to ATCP 30 that would allow prohibition areas (PAs) to be repealed. He feels that atrazine problems are related to soil type and that atrazine should be permanently banned on sandy soil areas. He feels that the 50% trigger level is a political decision that he calls the political action limit. Mr. Seefelt presented information on the relation between atrazine detects and cancer occurrences in the Town of New Hope.

SUMMARY OF ORAL TESTIMONY PROPOSED AMENDMENTS TO ATCP 30

4. Mary Seefelt: Mrs. Seefelt says via written comments read by Mr. Edward Seefelt that she has had various levels of atrazine in her well and has been using bottled water for four years. She cites a correlation between atrazine and cancer.
5. Jim Stoltenberg: Mr. Stoltenberg is opposed to the rule change that would allow repeal of atrazine prohibition areas. He cites wells in the Town of New Hope with atrazine levels going up and down. He cites nine new cases of cancer in New Hope.
6. Russ Weisensel: Mr. Weisensel is concerned that the atrazine prohibition area near his farm in Dane County will never be lifted because the rule is too strict. He used to use atrazine and never had a detect in his well. He feels there are economic benefits to using atrazine. He presented a list of all the atrazine pre-packaged products to stress an important use of atrazine. He cites the Minnesota groundwater standard of 20 ppb for atrazine. He would prefer three tests below the trigger level plus a declining trend prior to reuse of atrazine.
7. Gordon Cunningham: Mr. Cunningham feels that the proposal to repeal prohibition areas reflects the arrogance of DATCP. He thinks the public hearings are a farce. He opposes the reintroduction of atrazine, especially in Portage County.
8. Bernice Strauch: Ms. Strauch feels that a statewide ban would save money for well owners and avoid testing costs and health problems. She doesn't want any atrazine in her water and feels this is her right.
9. George Kraft: Mr. Kraft feels that DATCP's policy is misguided because it theoretically allows wells to contain an infinite number of chemicals up to 99% of the enforcement standard. He feels we should use the preventive action limit as the trigger level in the rule proposal. He feels that the rule should say that renewed atrazine won't cause an exceedence of the enforcement standard at the water table. He feels the DATCP board is biased toward agricultural interests, and that industry should pay for field-edge monitoring at fields of renewed atrazine use.
10. Beth Akemann: Ms. Akemann has had to haul water because of atrazine contamination. She is concerned that we will find out in the future that atrazine is worse than we thought.
11. Jim Butler: Mr. Butler is concerned about the reuse of atrazine and wonders whether we really know much about pesticide toxicology. He supports the research we will do as part of the rule proposal.
12. Bob Lord: Mr. Lord is a resident of the Town of New Hope. He feels our approach is too reactive in that we only do something after the contamination has occurred. He feels we need

SUMMARY OF ORAL TESTIMONY PROPOSED AMENDMENTS TO ATCP 30

a vision of prevention and education to protect our groundwater. He thinks we should use the preventive action limit (PAL) for the trigger level. He says that groundwater contamination is a "taking" issue.

13. Jonathan Doppsmith: Mr. Doppsmith feels we should pay (or cost share) people to not use atrazine.
14. Eric Anderson: Mr. Anderson feels there are alternatives to the use of atrazine. He wants us to err on the side of safety and clean groundwater in our approach.
15. Juanita Keller: Ms. Keller feels it is a crime to allow chemicals back into our water supply. She doesn't want the people in the 21 sites where the research will take place to be guinea pigs.
16. Vic Akemann: Mr. Akemann says that since we know there is a problem with atrazine, we should not allow its reuse. He thinks we should look for safe alternatives. He also wants us to reenter his statement from the ATCP 31 hearing in April of 1997 into this record.

Summary of Mr. Akemann's oral testimony presented in April 1997 for ATCP 31: Mr. Akemann lives in Portage County and is a teacher involved in studying the Little Plover River. He is worried that contaminated groundwater is discharging into surface water and negatively affecting macroinvertebrates. He feels that if a pesticide is a known problem and has already had an impact on groundwater, it is a bad idea to allow its reuse. He feels we should look for friendlier products. He is totally against the proposal.
17. Tom O'Day: Mr. O'Day is opposed to the proposal to repeal prohibition areas (PAs). He doesn't think one person's use of atrazine should be allowed to contaminate someone else's well. He is also worried about the composition of the DATCP's board.
18. A. J. Torzewski: Mr. Torzewski doesn't think we should accept money from industry to conduct the research on the reintroduction of atrazine in prohibition areas (PAs). If we can't find other sources of money, we should stop the process.
19. Joe Passineau: Mr. Passineau supports the use of the preventive action limit (PAL) as the trigger level. He feels that we have turned our groundwater into a pea-soup of chemicals. He notes that groundwater is a common resource for all citizens. He supports sustainable agriculture. Joe wants us to also enter into this record the testimony that he presented for ATCP 31 in April 1997.

SUMMARY OF ORAL TESTIMONY PROPOSED AMENDMENTS TO ATCP 30

Summary of Mr. Passineau's oral testimony presented in April 1997 for ATCP 31:
Mr. Passineau lives in New Hope and is Director of the Central Wisconsin Environmental Learning Center which has atrazine in its well. He is opposed to the proposal and feels we should be promoting sustainable agriculture. He feels that people have a right to clean water.

20. George Krubsack: Mr. Krubsack thinks there is plenty of opportunity for a more responsible agriculture.
21. Bob Wiza: Mr. Wiza says that contaminating groundwater is a choice and that we should move ahead and choose not to contaminate groundwater.

Appleton - September 25, 1997

No one attended the public hearing in Appleton on proposed changes to ATCP 30.

Richland Center - September 29, 1997

A total of 3 people attended the public hearing in Richland Center on proposed changes to ATCP 30. Of these 3 people:

- 2 spoke in support of the proposal
- 1 registered in support of the proposal

The following is a summary of the oral testimony provided at the Richland Center hearing:

1. Elizabeth Cronin: Ms. Cronin and her husband are not farmers, but they live in a rural area near Sparta. She generally supports the proposed changes to ATCP 30. She stated that the approach DATCP is taking appears "reasonable" and contains safeguards against loosening standards. She said that she will be watching how DATCP implements the rule to catch any "back-sliding" of standards.
2. David Flakne (Novartis Crop Protection): Mr. Flakne supports the proposed changes to ATCP 30. He believes the proposed repeal process addresses grower concerns and will provide relief to growers while ensuring environmental protection. He also supports using 50% of the enforcement standard (ES), rather than the preventive action limit (PAL), as the trigger level for prohibition area repeal. He also wants DATCP's board to recognize that the timing of these hearings was not good for grower participation because they are in

SUMMARY OF ORAL TESTIMONY PROPOSED AMENDMENTS TO ATCP 30

the field this time of the year. However, the fact that growers have already begun volunteering to participate in the monitoring project is a sign that they are interested in atrazine issues.

Madison - September 30, 1997

A total of 6 people attended the public hearing in Madison on proposed changes to ATCP 30. Of these 6 people:

- 2 spoke in support of the proposal
- 3 spoke in opposition to the proposal
- 1 registered as neither for nor against the proposal

The following is a summary of the oral testimony provided at the Madison hearing:

1. Edward Seefelt: Mr. Seefelt presented additional points to expand upon the oral testimony he gave in Stevens Point on 9/24/97. He is generally opposed to the proposed changes in ATCP 30 that relate to repeal of prohibition areas. He believes that preventive action limit (PAL) should be the repeal trigger level instead of 50% of the enforcement standard (ES). However, if a level other than the preventive action limit (PAL) is used, it should be based on scientific data, rather than chosen "arbitrarily" as he believes is the case for the 50% level. He stated that the protocol for the monitoring project is wrong, and that it should be used to determine the trigger level. Mr. Seefelt presented a written copy of his oral testimony as an exhibit.
- 2: Russ Weisensel (WI Agribusiness Council): Mr. Weisensel amended his oral testimony given in Stevens Point on 9/24/97. He noted that other states do not include pesticide metabolites in groundwater standards and, therefore, would not consider Wisconsin's wells over standards. He submitted an article from the American Cancer Society titled, "Cancer Facts & Figures - 1997" and a demonstration EPA Risk Model assessment for aspirin as exhibits.
3. Betsy Ahner (WI Fertilizer and Chemical Association): Ms. Ahner supports the proposed changes to ATCP 30 and thinks that the repeal process is the "fair thing to do" for Wisconsin farmers. She stated that, "Atrazine poses no adverse health effects to humans through food, drinking water, or handling.", and she cited several studies to support this idea. She expressed concern that atrazine alternatives are more expensive and less effective, at that increased use of ALS inhibitors as alternatives to atrazine will lead to

SUMMARY OF ORAL TESTIMONY PROPOSED AMENDMENTS TO ATCP 30

weed resistance of these compounds. Ms. Ahner presented a written copy of her oral testimony as an exhibit.

4. Caryl Terrell (John Muir Chapter-Sierra Club): Ms. Terrell opposes the repeal of atrazine prohibition areas because we do not know enough about atrazine. As evidence of this, she submitted a list describing what we do and do not know about atrazine that was part of the 1/17/96 DATCP board packet. She had no comment on the specific prohibition areas (PAs). She also had several questions and suggestions for language changes related to the proposed rule language and the Environmental Impact Statement (EIS). Ms. Terrell opposes the use of 50% of the enforcement standard (ES) as the repeal level, and feels that the preventive action limit (PAL) should be used instead. She wanted language changes in the EIS to reflect her belief that the preventive action limit (PAL) will always be exceeded if renewed atrazine use at current use rates is allowed in repealed prohibition areas.

5. Liz Wessel (Citizens for a Better Environment): Ms. Wessel opposes the repeal of atrazine prohibition areas and believes we should use the preventive action limit (PAL) as the repeal level. She stated that using anything other than the preventive action limit (PAL) would not meet the legal requirements of the groundwater law. She believes that atrazine users and manufacturers, and not DATCP, should bear the burden of proving that renewed use of atrazine will not cause groundwater contamination. Ms. Wessel also made several comments about the Environmental Impact Statement (EIS). She asked what the process will be for doing environmental impact analysis once a prohibition area (PA) is repealed.

SUMMARY OF WRITTEN TESTIMONY PROPOSED AMENDMENTS TO ATCP 30

Thirteen people submitted written testimony on the proposed amendments to Chapter ATCP 30, Wis. Admin. Code. The written record was open until October 8, 1997. In general, three people supported the proposal, five were opposed to some aspect of the proposal, and five submitted testimony for informational purposes. The following is a summary of the comments that we received.

1. Donald and Dorothy Hodges (residents of Columbia County): The Hodges are in favor of the new proposed atrazine prohibition area in Columbia County. They cite the increase in population in this area and the need to have a clean water supply in the future.
2. Layne and Connie Quamme (residents of Columbia County): The Quammes offered more general comments on their concern about atrazine use and well contamination in their area. They want DATCP to work toward a complete prohibition on atrazine use and are supportive of the work we have done so far on this issue. They feel there are better ways to control weeds than with atrazine.
3. John Bethke (resident of Vernon County): Mr. Bethke supports the proposed atrazine prohibition in his area. He feels that clean groundwater is extremely important and wants us to monitor and protect it.
4. Gordon Harvey (professor Agronomy Department - University of Wisconsin at Madison): Mr. Harvey generally favors the proposed process that may eventually allow prohibition areas to be repealed. He feels that no other herbicide is as good as atrazine at economically controlling weeds. He is opposed to the specific language in the rule draft that says "the first test may not occur sooner than 6 months after the effective date of the prohibition area". He thinks any starting point for the repeal process should be tied to the sample that was above the enforcement standard rather than the date the prohibition area was established.
5. Jane Haasch (resident of Waupaca County): Ms. Haasch has had nitrate problems in her well. She wants to see a ban on the use of pesticides in Wisconsin. She cites some cancer statistics and states that because of health risks, atrazine bans must be permanent. She feels that residents should be notified when pesticides are being used.
6. Jane Straecee (resident of Adams County): Ms. Straecee's farm is located near an atrazine prohibition area in Adams County. She has not used atrazine for 15 years. She feels that good stewardship of the land and water is the responsibility of the landowner. For those who don't have good stewardship, she wants us to impose regulations.
7. Robert Keller (resident of Adams County): Mr. Keller thinks it is thoroughly incomprehensible that DATCP would even consider this proposal to repeal prohibition areas

SUMMARY OF WRITTEN TESTIMONY PROPOSED AMENDMENTS TO ATCP 30

(PAs) given the scope of the atrazine problem in Wisconsin. He is adamantly opposed to all atrazine use in Wisconsin. He feels farmers should be using more organic farming methods.

8. Louise Pease (resident of Portage County): Ms. Pease is in favor of maintaining the atrazine prohibition areas. She thinks we should use the preventive action limit rather than the enforcement standard. She doesn't want the regulations to be relaxed.
9. Patricia Mather (resident of Portage County): Ms. Mather opposes the proposal to repeal atrazine prohibition areas. She submitted five articles concerning the health and environmental effects of atrazine. "Toxic Deception Tells Scary Story", "Chromosomal Damage Induced by Herbicide Contamination at Concentrations Observed in Public Water Supplies", "Intrauterine Growth Retardation in Iowa Communities with Herbicide-contaminated Drinking Water Supplies", and "Pesticides in Near-Surface Aquifers: An Assessment Using Highly Sensitive Analytical Methods and Tritium". She feels these articles point out that 1) You don't have to drink thousands of gallons of water with atrazine per day to increase the risk of health problems such as cancer, and 2) that there are problems other than cancer that are associated with pesticide exposure such as intrauterine growth retardation and chromosomal damage. She is also concerned about possible conflict of interest on the DATCP Board. She doesn't think the Board is listening to the concerns of the public. The evidence against atrazine has not changed. Water is a common resource that should not be allowed to be contaminated by any individual. She thinks the prohibitions on atrazine should remain.
10. Sue Anderson (resident of Portage County): Ms. Anderson wants DATCP to consider the needs of groundwater users when they are considering a repeal of an atrazine prohibition area. She wants us to use the preventive action limit for the trigger level, and test for atrazine in the groundwater in fields where it is used.
11. James Dunning (resident of Sauk County): Mr. Dunning submitted written testimony on behalf of the Ho-Chunk Nation which owns property and has a community well within an existing prohibition area in Sauk County. This well has had detects of atrazine in the past. In order to maintain a safe supply of drinking water for the community served by this well, he requests that prohibition area PA97-57-01 be maintained.
12. Marlene Hogue (resident of Ashland County): Ms. Hogue submitted written testimony against the idea of repealing atrazine prohibition areas. She feels that atrazine has caused too many problems in our drinking water to justify its use. She feels atrazine would again be overused if it is not highly regulated. She says we need to consider all the people affected by atrazine rather than just the farms who want to control weeds as cheaply as possible.

**SUMMARY OF WRITTEN TESTIMONY
PROPOSED AMENDMENTS TO ATCP 30**

13. Susan Sylvester (Department of Natural Resources): DNR submitted testimony that included several major points:

- We should use the preventive action limit rather than 50% of the enforcement standard (ES) as the repeal trigger level.
- We should use a definition of "Points-of-Standards-Application" that includes monitoring wells.
- ATCP 30 should clarify what will happen if we reintroduce atrazine in a prohibition area and atrazine levels in groundwater start to increase.
- ATCP 30 should include language to say that renewed atrazine use in a prohibition area "is likely to achieve and maintain compliance with the preventive action limit".

APPENDIX B

FISCAL ESTIMATE

DOA-2048 (R 10/94)

- ORIGINAL UPDATED
 CORRECTED SUPPLEMENTAL

LRB or Bill No. / Adm. Rule No. Proposed Amendment ATCP 30
Amendment No. (If Applicable)

Subject Creation of Additional Atrazine Prohibition Areas and Creation of Procedures to Repeal Prohibition Areas

Fiscal Effect

State: No State Fiscal Effect

Check columns below only if bill makes a direct appropriation or affects a sum sufficient appropriation

- Increase Existing Appropriation Increase Existing Revenues
 Decrease Existing Appropriation Decrease Existing Revenues
 Create New Appropriation

- Increase Costs - May be possible to Absorb Within Agency's Budget Yes No
 Decrease Costs

Local: No local government costs

1. Increase Costs
 Permissive Mandatory
2. Decrease Costs
 Permissive Mandatory

3. Increase Revenues
 Permissive Mandatory
4. Decrease Revenues
 Permissive Mandatory

5. Types of Local Governmental Unit Affected:

- Towns Villages Cities
 Counties Others _____
 School Districts WTCS Districts

Fund Source Affected

- GPR FED PRO PRS SEG SEG-S

Affected Ch. 20 Appropriations s.20.115(7s)

Assumptions Used in Arriving at Fiscal Estimate

State Government

The rule will be administered by the Agricultural Resource Management (ARM) Division of the Department of Agriculture, Trade and Consumer Protection (DATCP). The following estimate is based on enlarging 5 existing prohibition areas (PAs), creating 2 additional PAs, and establishing procedures to repeal prohibition areas in 1998.

Administration and enforcement of the proposal will involve new costs for the department. Specialist and field investigator staff time will be needed for inspections and enforcement in the new PAs (0.1 FTE, cost approximately \$4,000). Enforcement activities will be conducted in conjunction with current compliance inspections but at increased levels to ensure compliance with the additional prohibition areas. Compliance activities will be especially important in the first few years as growers, commercial applicators, dealers, and agricultural consultants in the PAs require education to comply with the new regulations.

Soil sampling conducted in the additional PAs to determine compliance with the rules will require an estimated \$2,000 in analytical services. In addition, a public information effort will be needed to achieve a high degree of voluntary compliance with the rule. Direct costs to produce and distribute the informational materials will be \$4,000.

Total Annual Costs to Create PAs: \$10,000

The following cost estimates are associated with procedures to repeal prohibition areas. These estimates are the same as reported in the fiscal estimate developed for the 1997 amendment to ATCP 31, which established a generic prohibition area repeal process based on the atrazine example. The purpose and costs associated with the groundwater sampling necessary to meet repeal requirements follow.

First, the department must reasonably conclude that atrazine concentrations throughout the prohibition area are below the enforcement standard (ES). To do this

well(s) upon which the pesticide prohibition area is based must be sampled a minimum of three times to qualify the prohibition area for repeal. When an existing atrazine prohibition area meets the criteria for repeal of the prohibition area, up to six wells within the prohibition area must also be tested for atrazine. Additionally, the well which initially tested above the enforcement standard within the prohibition area must be tested 2 and 5 years after repeal of the prohibition area.

Annual Well Sampling Costs in PAs:	# of wells	Collection (\$50/sample)	Analysis (\$250/sample)
Sample all wells that have exceeded a pesticide ES to determine whether they meet repeal criteria:	120	\$6,000	\$30,000
Sample up to 6 wells in prohibition areas where repeal criteria are met (4 new areas/year):	24	\$1,200	\$6,000
Sample wells that had exceeded the ES in repealed prohibition areas at 2 and 5 years (4 areas/year)	8	\$400	\$2,000
Subtotal:		\$7,600	\$38,000

Second, the department must determine whether renewed use of atrazine will maintain compliance with the enforcement standard. This will require groundwater monitoring at agricultural field sites in areas where the pesticide is being reintroduced. This will involve establishment of 21 sites with 3 monitoring wells per site. Installation of the monitoring wells is a one-time cost. These wells will have samples collected and analyzed quarterly.

One time Costs: Installation of 63 monitoring wells @ \$1,050 per well = \$66,150

Annual Costs to Monitor Renewed Use:

	#of wells	# of samples	Collection (\$50/sample)	Analysis (\$250/sample)
Sample monitoring wells quarterly:	63	252	\$12,600	\$63,000
Subtotal:			\$12,600	\$63,000
Total Annual Costs to Repeal PAs:			\$20,200	\$101,000

Total Costs:

The groundwater sample collection and analysis required by this proposal will involve new costs for the department. The Department estimates additional staff costs of 0.1 FTE at \$4,000 for compliance and \$20,200 for groundwater sample collection for \$24,200 of increased cost of State Operations - Salaries and Fringes. The \$6,000 in compliance sampling and public information costs and \$101,000 for groundwater sampling total \$107,000 in increased State Operations - Other Costs. Total one-time costs are \$66,150 for installation of monitoring wells. With the exception of the (0.1) FTE required for compliance, the increased costs of this amendment can not be absorbed by the department.

The Department anticipates no additional costs for other state agencies. Water sampling programs within the Department of Natural Resources and local health agencies may receive short term increased interest by individuals requesting samples.

FISCAL ESTIMATE WORKSHEET

1997 SESSION

Detailed Estimate of Annual Fiscal Effect
DOA-2047 (R.10/94)

ORIGINAL UPDATED
 CORRECTED SUPPLEMENTAL

LRB or Bill No/Adm.Rule No.
ATCP 30

Amendment No.

Subject

Creation of Additional Atrazine Prohibition Areas and Creation of Procedures to Repeal Prohibition Areas

I. One-time Cost or Revenue Impacts for State and/or Local Government (do not include in annualized fiscal effect):
\$66,150

II. Annualized Cost:

Annualized Fiscal Impact on State funds from:

A. State Costs by Category

Increased Costs

Decreased Costs

State Operations - Salaries and Fringes

\$ 24,200

\$ -

(FTE Position Changes)

(0.1 FTE)

(- FTE)

State Operations - Other Costs

107,000

-

Local Assistance

-

Aids to Individuals or Organizations

-

TOTAL State Costs by Category

\$ 131,200

\$ -

B. State Costs by Source of Funds

Increased Costs

Decreased Costs

GPR

\$

\$ -

FED

-

PRO/PRS

-

SEG/SEG-S

131,200

-

III. State Revenues -

Complete this only when proposal will increase or decrease state revenues (e.g., tax increase, decrease in license fee, etc.)

Increased Rev.

Decreased Rev.

GPR Taxes

\$

\$ -

GPR Earned

-

FED

-

PRO/PRS

-

SEG/SEG-S

-

TOTAL State Revenues

\$

\$ -

NET ANNUALIZED FISCAL IMPACT

STATE

LOCAL

NET CHANGE IN COSTS

\$ 131,200

\$ 0

NET CHANGE IN REVENUES

\$ 0

\$ 0

Agency Prepared by: (Name & Phone No.)

Authorized Signature/Telephone No.

Date

DATCP
Jim Vanden Brook - (608) 224-4501

Barbara Knapp
Barbara Knapp (608) 224-4746

6/25/97

On Local Units of Government

The rule does not mandate that local government resources be expended on sample collection, rule administration or enforcement. The rule is therefore not expected to have any fiscal impact on local units of government. County agricultural agents will likely receive requests for information on provisions of the rule and on weed control strategies with reduced reliance on atrazine. This responsibility will probably be incorporated into current extension programs with no net fiscal impact.

Long - Range Fiscal Implications

Agency/prepared by: (Name & Phone No.)

DATCP (608)
Jim Vanden Brook - 224 - 4501

Authorized Signature/Telephone No.

Barbara Knapp
Barbara Knapp (608) 224-4746

Date

6/25/97