

**REPORT TO THE
GENERAL ASSEMBLY
STATE OF COLORADO**

**STATUS OF IMPLEMENTATION OF SENATE BILL
90-126, THE AGRICULTURAL CHEMICALS AND
GROUNDWATER PROTECTION ACT**

**Submitted by Steven W. Horn,
Commissioner
Colorado Department of Agriculture
December 31, 1992**

Report to the General Assembly of the State of Colorado

Status of Implementation of Senate Bill 90-126, the Agricultural Chemicals and Groundwater Protection Act

In accordance with Title 25 Article 8 Section 205.5 (9), C.R.S. (1990 Supp.), the following report of the progress made in implementing the provisions of the Agricultural Chemicals and Groundwater Protection Act ("Act") is hereby provided. This report reflects progress made since the last report, dated December 31, 1991.

In the report to the Legislature dated December 31, 1991, several goals for 1992 were identified by the cooperating agencies. The progress made toward each of the goals is detailed in the following pages.

Memoranda of Understanding

Memoranda of Understanding as provided in Section 25-8-205.5 (3)(f) and (g) of the Act have been signed for fiscal year 1992/93 between the Colorado Department of Agriculture and: 1) Colorado State University Cooperative Extension (Appendix I); and 2) the Colorado Department of Health (Appendix II).

Education and Communication

A short video entitled Protecting Colorado's Groundwater was produced to inform the general public on groundwater quality, agricultural chemicals and the Act. This video may be borrowed from the Department of Agriculture or copies may be purchased from the CSU bulletin room. Contact Mitch Yergert with the Colorado Department of Agriculture at 239-4140 if you or any of your staff wish to view the video. In order to keep the advisory committee and interested organizations informed of activities concerning the program a newsletter was developed (Appendix III). The newsletter will be published several times a year to present current information on the program. Also, a fact sheet was prepared to provide information on the program and is being distributed at meetings, conferences and trade shows (Appendix III). A display board was developed and is being utilized at conferences and trade shows to provide information on the program. Information on the program is continually being

presented to the public through radio shows, mass media, press releases and at presentations at meetings throughout the state.

Best Management Practices

The procedure for the development of best management practices (BMPs) has been established. The BMPs will be developed at the user level through extensive local input. The South Platte River Basin from metro Denver to the Nebraska state line and the San Luis Valley are the first two priorities for BMP development. The localized BMPs for the San Luis Valley will be developed during the winter of 1992/1993 in cooperation with the USDA Water Quality Project and the Soil Conservation Service (Appendix IV).

Demonstration Sites and Field Days

Ten (10) fields in 5 counties in the South Platte River Valley were selected and used to demonstrate improved nitrogen management techniques in irrigated corn. Field days were held at three of the sites to show local producers the techniques in situations similar to what would be found on their own farms. Demonstration plots and field days will be continued in the South Platte River Basin in 1993 (Appendix IV).

Groundwater Monitoring

The first groundwater monitoring by this program took place in the summer of 1992. The program sampled 96 shallow domestic use wells in the South Platte River alluvial aquifer. The wells were located from 80th Avenue in Commerce City to the Nebraska state line. The samples were analyzed for pesticides used in the area and for commercial fertilizers, including nitrate. The sampling was closely coordinated with extension agents, water conservancy districts, and local and county officials in the area. Several of these wells are currently being resampled to confirm the results.

A similar monitoring program will be conducted in the San Luis Valley in 1993 (Appendix V). Several other groundwater monitoring projects analyzing for at least one agricultural chemical, usually nitrate, are being performed by other agencies (Appendix VI).

A model that will be used to assess aquifer vulnerability to contamination by agricultural chemicals has been developed. The model will be used in assisting to prioritize areas for groundwater monitoring and BMP development (Appendix V).

Groundwater Data Management System

The collection, evaluation and entering of existing groundwater quality data from all available sources is ongoing. The data that are currently available have been or is in the process of being entered into the groundwater quality database at the Department of Health. Other data have been generated however they remain unavailable due to concerns about privacy and future use of the data (Appendix V).

Advisory Committee

The advisory committee continues to be an integral part of the implementation of this program by providing input from the many facets of the agricultural community and the general public they represent. Six of the members terms expired on January 31, 1992. All six were reappointed by the Colorado Agricultural Commission to new three year terms (Appendix VII). The committee met six times during 1992. Over the course of three meetings the committee reviewed and revised the drafted bulk storage and mixing and loading regulations and requested that the regulations be presented at meeting throughout the state in order to solicit public input prior to formal rule making. The committee provided advice on numerous other issues and topics, including the format for presentation and publication of the BMPs.

Coordination

Coordination with other projects and programs relating to agricultural chemicals and groundwater is an essential part of the implementation of the Act. All three agencies work continually to keep abreast of other programs both governmental and private so information can be incorporated into the implementation of the Act as well this programs information passed on to other agencies and organizations. Input is sought in all phases of the implementation of this program to avoid duplication of efforts, costs and to insure decisions are made with the most complete knowledge available.

Storage Regulations

A subcommittee of the advisory committee developed a draft of the rules and regulations for bulk storage facilities and mixing and loading areas as required in section 25-8-205.5 (3) (b) of the Act. The subcommittee's draft was reviewed and revised by the advisory committee. This draft is now being presented at public meetings throughout the state to solicit local input. Further revisions will be

made in early 1993 and the formal rule making process will begin in late 1993. This approach provides two opportunities for public review. Proposed federal storage regulations for bulk storage of agricultural chemicals are still several years away. The program continues to stay abreast of information concerning the development of federal regulations in order to prevent a conflict with regulations that will eventually be enacted at the federal level. By proceeding in this manner the program continues its pro-active posture to achieve the goal of the Act which is to protect groundwater and the environment from impairment or degradation (Appendix VIII).

Major Issues

The statutory language in the Act dealing with rules and regulations for bulk storage sites and mixing and loading areas is still a concern. As stated in last year's report, the language in the Act is not consistent with the manner in which the terms are commonly used in the industry or with similar laws in other states, and the ability to integrate with federal regulations that are being developed could be problematic. However, in light of this we have moved forward with the development of rules and regulations. A continuing problem is the unwillingness among many agencies both, public and private, to share groundwater quality data already developed due to concerns about privacy and future use of the data.

Goals for 1993 Determined

The following goals for 1993 have been established:

- Develop localized BMPs for irrigated corn producers in the South Platte River Basin;
- Set up a local BMP working group in the San Luis Valley to begin developing BMPs for major crop rotation patterns;
- Begin the production of a general BMP notebook for Colorado Agriculture with the initial focus on irrigated areas;
- Develop a general list of BMPs for Colorado agricultural chemical users in cooperation with U.S. Soil Conservation Service;
- Continue demonstration plots in the South Platte River area for displaying improved nitrogen and water management to farmers;

- Develop educational resource materials for groundwater education particularly a slide set focusing on urban uses of agricultural chemicals;
- Continue education in the front range to encourage improved agricultural chemical and water management to homeowners and urban applicators;
- Continue to hold in-service training for chemical applicators, agency personnel, etc.;
- Complete the analysis and report of the 100 groundwater samples taken in the San Luis Valley;
- Follow up sampling sites on the South Platte River where agricultural chemicals were found above a level of concern;
- Assess the vulnerability model recommendation and begin implementing the model;
- Obtain and input results of other groundwater monitoring for agricultural chemicals into the Agricultural Chemicals and Groundwater database;
- Begin the development of a long term sampling plan;
- Integrate results of other projects to achieve goals in the Act;
- Complete public meetings on the drafted rules and regulations for bulk storage sites and mixing and loading areas;
- Review and revise the drafted rules and regulations for bulk storage sites and mixing and loading areas based on comments from the public meetings;
- Begin the formal rule making process in late 1993 for the drafted bulk storage sites and mixing and loading areas;
- Continue disseminating information on the Act and groundwater protection to special interest groups in Colorado;
- Continue publishing and distributing the newsletter;
- Continue distributing the fact sheet and using the display board to provide information on the program.

APPENDICES

TABLE OF CONTENTS

Appendix I	CSU Cooperative Extension Memorandum of Understanding
Appendix II	CDH Water Quality Control Division Memorandum of Understanding
Appendix III	Education and Communication Materials
Appendix IV	CSU Cooperative Extension Activities Report
Appendix V	CDH Water Quality Control Division Activities Report
Appendix VI	Colorado Ground Water Sampling Programs
Appendix VII	Advisory Committee
Appendix VIII	Rule and Regulation Development for Bulk Storage Facilities and Mixing and Loading Areas

APPENDIX I

**MEMORANDUM OF UNDERSTANDING
BETWEEN
COLORADO DEPARTMENT OF AGRICULTURE
AND
COLORADO STATE UNIVERSITY**

This Memorandum of Understanding (M.O.U.) is made and entered into by and between the Colorado Department of Agriculture, hereinafter referred to as C.D.A. and Colorado State University, hereinafter referred to as C.S.U.

WHEREAS, the C.D.A. is statutorily authorized to enter into an agreement with C.S.U. to provide training and education for agricultural chemicals and groundwater pursuant to Title 25, Article 8, The Water Quality Control Act.

WHEREAS, it is the intention of the parties that such cooperation shall be for their mutual benefit and the benefit of the peoples and environment including the groundwaters of the State of Colorado.

NOW THEREFORE, it is hereby agreed that

1. SCOPE OF SERVICE. In consideration for the monies to be received from C.D.A., the C.S.U. shall perform and carry out, in a satisfactory and proper manner, as determined by the C.D.A., all work elements indicated below:

(a) Continue the compilation of general best management practices (BMPs) for the State of Colorado for both rural and urban areas. The resulting BMPs will be compiled in a notebook. Copies of the notebook will be distributed to Cooperative Extension Service offices, Soil Conservation Service offices, consultants, agricultural chemical applicators and dealers and cooperating agencies.

(b) Continue to coordinate educational activities and programs related to BMPs throughout the state with emphasis for this activity to be placed on the South Platte River Basin and the San Luis Valley.

(c) Conduct meetings with agricultural chemical users to begin developing localized BMPs using the materials and information developed in 1(a) and (b) as well as utilizing local input.

(d) Assist the C.D.A. in beginning to develop a generic State Management Plan (SMP) for agricultural chemicals to meet federal guidelines. Assist in the development of a pesticide specific SMP as needed.

(e) Continue to work in conjunction with the C.D.A. and the Colorado Department of Health to identify the agencies involved in groundwater protection; provide input and expertise into the development of rules and regulations for bulk storage facilities and mixing and loading areas where at least 55,000 pounds of finished product of agricultural chemicals are handled each year and disseminate information on any agricultural management areas that may be defined.

(f) Items 1(a), (b), (c), (d), and (e) will be completed by June 30, 1993.

(g) Provide a written report detailing progress toward implementation of the Agricultural Chemicals and Groundwater Protection Act, including, but not limited to, items 1(a), (b), (c), (d) and (e) no later than November 1, 1992.

(h) No indirect cost will be allowed.

2. PERFORMANCE.

(a) Responsible Administrator: Performance of service provided under this contract shall be monitored by and reported to the Pesticide Section of the C.D.A.

(b) Evaluation: C.S.U. agrees that the C.D.A. has the right to conduct periodic evaluations of the development of materials in item 1(a), (b), (c), (d) and (f). *JB*

(c) Time of Performance: The project contemplated shall commence ^{July 1, 1992} upon ~~the execution of this memorandum of understanding~~ and shall be terminated on June 30, 1993. *APL*

(d) Compensation: C.D.A. shall reimburse C.S.U. for actual, reasonable and necessary expenses incurred in providing services pursuant to this agreement. Total compensation shall not exceed fifty-three thousand one hundred dollars (\$53,100). No indirect costs shall be allowed. Payments shall be made upon receipt by the C.D.A. of quarterly billings. C.S.U. shall retain the documentation to support the billings.

(e) Maintenance of Records: C.S.U. shall maintain all records, documents, communications, and other materials which pertain to the operation of programs to properly reflect all direct and indirect costs of labor, materials, equipment, supplies, and services, and other costs of whatever nature for which payment was made pursuant to this agreement. Such information shall be available for a period of three years following the termination of this agreement for audit in compliance with State Fiscal Rules.

COLORADO STATE UNIVERSITY

COLORADO DEPARTMENT OF AGRICULTURE

James F. Brown
James F. Brown
Assistant V.P. for Research

Steven W. Horn
Steven W. Horn
Commissioner

8/30/92
DATE

8-28-92
DATE

APPENDIX II

**MEMORANDUM OF UNDERSTANDING
BETWEEN
COLORADO DEPARTMENT OF AGRICULTURE
AND
COLORADO DEPARTMENT OF HEALTH
DIVISION OF WATER QUALITY CONTROL**

This Memorandum of Understanding (M.O.U.) is made and entered into by and between the Colorado Department of Agriculture, hereinafter referred to as C.D.A. and the Colorado Department of Health, Division of Water Quality Control, hereinafter referred to as C.D.H.

WHEREAS, the C.D.A. is statutorily authorized to enter into an agreement with C.D.H. to assist in the identification of agricultural management areas and to perform monitoring to determine the presence of agricultural chemicals in the groundwater or the likelihood that an agricultural chemical will enter the groundwater pursuant to Title 25, Article 8, the Water Quality Control Act.

WHEREAS, it is the intention of the parties that such cooperation shall be for their mutual benefit and the benefit of the peoples and environment including the groundwaters of the State of Colorado.

NOW THEREFORE, it is hereby agreed that

1. SCOPE OF SERVICE. In consideration for the monies to be received from the C.D.A., the C.D.H. shall perform and carry out, in a satisfactory and proper manner, as determined by the C.D.A., all work elements indicated below:

(a) Continue to gather, assemble and evaluate existing data on Colorado's groundwater quality in areas where agricultural chemicals are used from such sources as the State Engineer's Office, U. S. Geological Survey, Colorado Geological Survey, Colorado State University, the U. S. Environmental Protection Agency, water conservancy districts, the Soil Conservation Service, et. al.

(b) Input applicable data from 1(a) into the Agricultural Chemicals Groundwater Quality Data Base (ACGWQDB) and provide a written report to the C.D.A on November 1, 1992 and May 1, 1993 of the information entered.

(c) Maintain the ACGWQDB and make the data available to interested parties.

(d) Select wells, collect and analyze at least 100 groundwater samples from the first phase of follow-up sampling in the South Platte River basin and the initial phase of sampling in the San Luis Valley for agricultural chemicals. If needed, monitoring wells may be installed. Depending upon the analytical results from the initial round of sampling, funds may be used to expand the number and kinds of analytical determinations on a contingency basis to explore initial results.

(e) Report the results of the analyses from 1(d) to the Commissioner and input the data into the ACGWQDB.

(f) Develop a long term sampling plan.

(g) Accept the final report from Colorado State University on the Colorado Aquifer Vulnerability Model and begin evaluation.

(h) Assist the C.D.A. in beginning to develop a generic State Management Plan (SMP) for agricultural chemicals to meet federal guidelines. Assist in the development of a pesticide specific SMP if needed.

(i) Continue to work in conjunction with the C.D.A. and C.S.U. Cooperative Extension to identify the agencies involved in groundwater protection; consult on the development and refinement of best management practices; and assist in defining agricultural management areas as needed.

(j) Items 1(a), (b), (c), (d), (e), (f), (g), (h), and (i) shall be completed by ~~June 30~~, 1993.

December 31,

(k) Provide a written report detailing progress toward implementation of the Agricultural Chemicals and Groundwater Protection Act (SB 90-126), including, but not limited to, items 1(a), (b), (c), (d), (e), (f), (g), (h), and (i) no later than November 1, 1992.

(l) Indirect costs shall not exceed \$10,051.

2. PERFORMANCE.

(a) Responsible Administrator: Performance of service provided under this contract shall be monitored by and reported to the Pesticide Section of the C.D.A.

(b) Evaluation: The C.D.H. agrees that the C.D.A. has the right to conduct periodic evaluations of the progress made toward completion of items 1(a), (b), (c), (d), (e), (f), (g), (h) and (i).

(c) Time of Performance: The project contemplated shall commence upon the execution of this memorandum of understanding and shall be terminated on June 30, 1993.

(d) Compensation: C.D.A. shall reimburse C.D.H. for actual, reasonable and necessary expenses incurred in providing services pursuant to this agreement. Total compensation shall not exceed one hundred fifty-six thousand five hundred twenty-four dollars (\$156,524), one hundred forty-six thousand four hundred seventy-three dollars (\$146,473) of which are direct program costs, and ten-thousand fifty-one dollars (\$10,051) are indirect costs. Payments shall be made upon receipt by the C.D.A. of quarterly billings accompanied by supporting documentation.

(e) Maintenance of Records: C.D.H. shall maintain records, documents, communications, and other materials which pertain to the operation of programs or the delivery of services under this agreement. Such materials shall be sufficient to properly reflect all direct and indirect costs of labor, materials, equipment, supplies, and services, and other costs whatever nature for which payment was made pursuant to this agreement. Such information shall be available for a period of three years following the termination of this agreement for audit in compliance with State Fiscal Rules.

COLORADO DEPARTMENT OF HEALTH

COLORADO DEPARTMENT OF AGRICULTURE

Patricia A. Nolan, MD MPH
Patricia A. Nolan, MD, MPH
Executive Director

Steven W. Horn
Steven W. Horn
Commissioner

APPROVALS:
STATE CONTROLLER
RICHARD W. HALL

8/28/92
DATE

9/2/92
DATE *Richard W. Hall*

2(f) Availability of funds for payment after June 30, 1993: Funds for services provided in accordance with this agreement have been appropriated and made available pursuant to HB 92-1345. Payment for services provided in accordance with this contract, and rendered after June 30, 1993, is contingent upon the State Controller's approval of a rollforward of funds encumbered but not expensed during the state fiscal year 1993 under this agreement.

swk/on

swk/on

APPENDIX III



AGRICULTURAL CHEMICALS AND GROUNDWATER PROTECTION

What's This?

What you have before you is a newsletter designed to provide information on activities related to the Agricultural Chemicals and Groundwater Protection Act (SB 90-126). The newsletter will be distributed to professional organizations and producer groups for inclusion in their newsletters, if they desire.

Background

Senate Bill 90-126, the Agricultural Chemicals and Groundwater Protection Act, was passed in 1990 by the Colorado Legislature. The Act declared that the public policy of the state would be to protect groundwater and the environment from impairment or degradation due to the improper use of agricultural chemicals while allowing for their proper and correct use.

In particular, the Act provides for the management of agricultural chemicals to prevent, minimize, and mitigate their presence in groundwater and to provide for the education and training of agricultural chemical applicators and the general public regarding groundwater protection, agricultural chemical use and the use of other agricultural methods.

The Act established a procedure for three state agencies to cooperate in implementing this program. They are the Colorado Department of Agriculture, Colorado Department of Health, and Colorado State University/Cooperative Extension.

Colorado Department of Agriculture

The Colorado Department of Agriculture is the lead agency responsible for the overall coordination, development, and implementation of the Agricultural Chemicals and Groundwater Protection Act.

Along with being the lead agency, the CDA is required to develop and adopt rules and regulations for bulk storage facilities and mixing and loading areas. This process began with the development of a draft of the regulations by a subcommittee. The Advisory Committee (see box below) reviewed and revised the drafted regulations. With the Advisory Committee's approval, this latest draft will be presented at a series of public meetings held around the state this winter. This winter's meetings along with the formal hearings that will be held just prior to adoption of the regulations will allow two opportunities for local input. It is anticipated adoption of the regulations will occur in early 1994.

ADVISORY COMMITTEE

The Colorado Agricultural Commission appointed seventeen individuals to an advisory committee dealing exclusively with the implementation of SB 90-126. Represented on the committee are agricultural producers, the green industry, agricultural chemical suppliers, commercial applicators, the general public and the Water Quality Control Commission. With this broad range of input a groundwater protection program can be developed that is effective and responsive.

Colorado Department of Health

The Agricultural Chemicals and Groundwater Protection Act provides funding to improve the management of agricultural chemicals to prevent, minimize, and mitigate their presence in groundwater. To help accomplish this goal, the Water Quality Control Division of the Colorado Department of Health was authorized to conduct monitoring programs to determine the presence of agricultural chemicals (pesticides and commercial fertilizers) in the groundwaters of the state.

This monitoring program involves collecting groundwater samples throughout the state and analyzing for contamination. The division will then determine if the agricultural chemicals analyzed are present at or above the concen-

tration limits set by the Water Quality Control Commission. If the division discovers the presence of an agricultural chemical at or above the applicable standard, it is required to notify the Commissioner of Agriculture. The Commissioner of Agriculture may then take appropriate action to remedy the problem. The CDH also conducts studies of aquifers to determine what aquifers are at risk of contamination from agricultural chemicals. This process may lead to the identification of agricultural management areas.

The Water Quality Control Division just completed sampling 100 shallow alluvial groundwater wells along the South Platte River. Wells were selected based upon location (within the alluvial aquifer), depth (generally less than 150 feet), and permitted use (domestic, livestock, or household). The samples are being analyzed for selected pesticides used in the area and inorganic parameters, including nitrate.

THE GOAL...

"To Protect Groundwater And The Environment From Impairment Or Degradation Due To The Improper Use Of Agricultural Chemicals While Allowing For Their Proper And Correct Use..."

Taken From SB 90-126

Colorado State University Cooperative Extension

The role of Cooperative Extension in the implementation of SB 90-126 is very different from that of CDA and CDH in that there is no regulatory function, but rather are charged with education and training. The educational programs are aimed at several diverse audiences including: the general public, farmers, commercial applicators, urban gardeners, and school age youth. As such, a variety of educational methods to reach these groups with information on agricultural chemical use and groundwater protection will be used.

One educational project which has been completed is a professionally produced videotape on groundwater issues in Colorado. This video

is aimed at the general public and is approximately 15 minutes in length. The video is now ready for distribution. Copies are available to loan from the CDA and will be able to be purchased from CSU Bulletin Room.

With the endorsement of the Advisory Committee it was agreed to begin the process of developing Best Management Practices (BMP's) for Colorado in the South Platte River Basin. With this in mind, a research and demonstration project to improve nitrogen efficiency and management in irrigated corn has been initiated. Test plots in each of five counties in the South Platte region for research and demonstration purposes have been set up.

The main objective will be to demonstrate to farmers the economic and environmental aspects of proper nitrogen fertilization. In-field nitrate testing of soil and water, irrigation efficiency, and current Colorado State University nitrogen recommendations will be evaluated. This project is the starting point for developing localized BMP's for Colorado.



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(303) 331-4552



Reagan Waskom
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(303) 491-6103

FUNDING

Funding for the program is provided by a twenty dollar fee assessed to the manufacturer or formulator of each pesticide product registered in the state each year and a fee of fifty cents on each ton of commercial fertilizer sold in the state of Colorado.

FY

Further information can be obtained by contacting the following:

Lead Agency/Rules and Regulations
Mitchell Yergert
Colorado Department of Agriculture
(303) 239-4140

Education and Training
Reagan Waskom
CSU Cooperative Extension
(303) 491-6103

Groundwater Monitoring
Brad Austin
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(303) 692-3572

This fact sheet was prepared by the
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COLORADO DEPARTMENT OF AGRICULTURE

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GOAL...

To protect groundwater and the environment from impairment or degradation due to the improper use of agricultural chemicals while allowing for their proper and correct use...

Taken from SB 90-126

Steven W. Horn, Commissioner

Roy Romer, Governor

THE COLORADO LEGISLATURE

During the 1990 legislative session the Colorado Legislature passed Senate Bill 90-126, the Agricultural Chemicals and Groundwater Protection Act. In this Amendment to the Colorado Water Quality Control Act, the general assembly declared that the public policy of this state is "to protect groundwater and the environment from impairment or degradation due to the improper use of agricultural chemicals while allowing for their proper and correct use." The emphasis is to improve the management of agricultural chemicals to prevent, minimize, and mitigate their presence in groundwater.

The Act emphasizes a voluntary approach, using education and training, to achieve the goal. Should voluntary efforts fail to address groundwater contamination from agricultural chemicals, the law sets forth a series of actions first by the Commissioner of Agriculture and then finally by the Water Quality Control Commission.

The Act defines agricultural chemicals as all pesticides and commercial fertilizers used in both urban and rural settings. The Colorado Department of Agriculture, the lead agency, the Colorado Department of Health, and Colorado State University Cooperative Extension are cooperating agencies in the implementation of this program.

ADVISORY COMMITTEE

The Colorado Agricultural Commission appointed an advisory committee to assist in the implementation of this program. The committee consists of seventeen individuals from the public, producers, green industry, agricultural chemical suppliers, commercial applicators and the Water Quality Control Commission. Members are appointed for a three year term with one-third of the terms expiring each year.

EDUCATION AND TRAINING

Education and training of agricultural chemical applicators to insure proper and correct use of pesticides and fertilizers is the key to the program. The program is geared to all users of pesticides and fertilizers including commercial applicators, urban homeowners, farmers, golf course superintendents and the general public. Colorado State University Cooperative Extension provides the education and training component. A variety of educational methods are used to reach these groups with information on agricultural chemical use and groundwater protection.

One major component of the program is the development of best management practices (BMPs) for agricultural chemical use. Research based guidance principles and BMPs are being developed by CSU in cooperation with the Soil Conservation Service and other agricultural groups. Localized BMPs will be developed at the user level with extensive local input.

GROUNDWATER MONITORING

The Colorado Department of Health is conducting a groundwater monitoring program to determine the presence of agricultural chemicals in the groundwater. The water sampling is performed by the Department of Health's Water Quality Control Division in close coordination with extension agents, water conservancy districts, and local officials.

Wells sampled are analyzed for selected pesticides and basic inorganic parameters including nitrate. The pesticides are selected based on the frequency of use in the area and the physical properties of the pesticide. The groundwater monitoring program provides a basis for determining a groundwater quality baseline upon which to gauge trends in groundwater quality. The results are entered in the CDH groundwater

quality data base.

RULES AND REGULATIONS FOR BULK STORAGE AND MIXING AND LOADING AREAS

The Commissioner of Agriculture is required to "promulgate rules and regulations for bulk storage facilities and mixing and loading areas where at least fifty-five thousand pounds of finished product of agricultural chemicals are handled each year, except that any such rule and regulation shall include a three-year phase-in period for any persons subject to such rules and regulation." The purpose of these rules and regulations is to prevent spills and leaks that may occur during the storage or mixing/loading of agricultural chemicals from contaminating groundwater. The rules and regulations will establish performance standards for the construction and operation of: secondary containment of bulk liquid pesticide and fertilizer storage facilities; pesticide and fertilizer mixing/loading areas; and bulk dry pesticide and fertilizer storage.

The process for the development of the rules and regulations provides for extensive public input. A subcommittee including members of the advisory committee develops a draft of potential rules and regulations. The advisory committee reviews and revises the subcommittee's draft. With the advisory committee's approval this draft is presented at public meetings of professional organizations, industry groups, and interested parties throughout the state to receive input.

Following this presentation of the rules, the draft is revised, as necessary, and formal hearings held in preparation of adoption of the rules and regulations. This process allows two opportunities, the public meetings and the formal hearings, for the public to affect the content of these regulations. It is anticipated adoption of the regulations occurs in early 1994.

APPENDIX IV

1992 Annual Report
Colorado State University Cooperative Extension

Accomplishments:

1. Gave presentations on SB 90-126 and groundwater quality to various audiences throughout the state including: commodity groups, licensed applicators, agricultural producers, urban chemical users.
2. Completed production of an educational video tape on water quality and SB 90-126.
3. Compiled BMPs from many other states and agencies to be used in Colorado's BMP program as appropriate.
4. Worked to coordinate all aspects of development of the BMPs for Colorado with the Soil Conservation Service, water conservancy districts, and soil conservation districts.
5. Began the production of a BMP notebook for Colorado to be utilized by all agricultural chemical users.
6. Prepared radio and newspaper releases describing SB 90-126 for distribution statewide through the CSU Public Relations Department media contacts.
7. Participated as a member of the SB 90-126 Implementation Task Force. Through regular meetings, activities were planned and coordinated.
8. Prepared audio visual information to be used in presenting SB 90-126 information to audiences.
9. Conducted demonstration projects and held field days at 5 sites in the South Platte River Basin to educate farmers on proper use of nitrogen fertilizer and irrigation as related to water quality.
10. Conducted in-service training for Cooperative Extension agents and other agency personnel on water quality issues and SB 90-126.
11. Monthly newsletter articles on water quality, SB 90-126, and BMPs were produced for the Agronomy Department Extension Newsletter and the Ag Engineering Extension Newsletter. These reports are distributed throughout Colorado to extension agents and their clientele.

12. Dr. Lloyd Walker represented Cooperative Extension on the Bulk Storage and Mixing and Loading Regulation subcommittee to provide technical expertise and engineering guidelines for the development of rules and regulations. Dr. Walker also produced a summary sheet of the drafted regulations to be handed out as well as a form to receive feed back on the drafted regulations. He also gave presentations on the drafted regulations to several groups.

1992 Annual Report
Colorado State University Cooperative Extension

Best Management Practice Development Plan

Colorado State University Cooperative Extension is working with the Colorado Department of Agriculture to develop Best Management Practices for Colorado farmers, land owners, and commercial agricultural chemical applicators. The actual BMPs adopted for use at the local level must ultimately be determined by the agricultural chemical user because of the site specific nature of groundwater protection. The local perspective is also needed to evaluate the feasibility and economic impact of these practices. The advisory committee has recommended that a significant level of input be received at the local level prior to adoption of recommended BMPs.

Colorado State University Cooperative Extension is currently working to compile a broad set of BMPs encompassing nutrient, pest, and water management which will be used as a template for local committees. This document will receive input and review from CSU agricultural scientists and extension personnel, the Soil Conservation Service, local water districts and the advisory committee. It will be published in notebook form that can be updated as needed and expanded to include additional guidelines.

Cooperative Extension has elected to begin the local BMP development process in the San Luis Valley in conjunction with the USDA San Luis Valley Water Quality Demonstration Project. This group will use their resources to help facilitate the development and demonstration of BMPs specific to this area. The local working committee will consist of a small group of producers, consultants, and agricultural chemical applicators. Representation from the local SCS and Cooperative Extension offices will round out the work group. Once this group has reached a consensus on appropriate BMPs, a series of public meetings will be held in the area to receive comment and input. During the 1993 crop season BMPs will be implemented on a small scale in field demonstrations.

Field Demonstrations

Colorado State University Cooperative Extension and the Northern Colorado Water Conservancy District cooperated on field research and educational plots during 1992 to demonstrate improved nitrogen management techniques in the South Platte Region. New production tools are being evaluated and demonstrated to farmers which may improve producer profitability and protect groundwater.

Field trials were held on 5 farms in the basin during 1992. Educational field days were held at three sites in July to

acquaint other producers and interested parties with the program and the need for groundwater protection.

A new technology known as in-season nitrate testing was demonstrated to farmers at the field days. This tool may help farmers improve nitrogen recommendation accuracy and minimize the use of "insurance" nitrogen fertilizer. By complementing preplant soil testing with in-season testing, it may be possible to improve nitrogen leaching of NO_3 to groundwater. Quick soil test kits for NO_3 have been developed that allow "field testing," thereby alleviating the problem of slow turn-around time in commercial soil testing laboratories. The development of these quick test kits has made the in-season nitrate test a viable soil testing procedure for assessing the nitrogen fertility status of crops at any growth stage. It is expected that this will result in the joint use of preplant deep soil NO_3 testing and in-season testing which will increase the accuracy of nitrogen fertilizer recommendations. The total application of nitrogen fertilizer can be decreased without negatively affecting crop yields as farmers adopt this improved technology.

Project sponsors include Colorado State University Cooperative Extension and Department of Agronomy, Northern Colorado Water Conservancy District, and the Soil Conservation Service. Farmer Cooperators included Mr. Dennis Hoshiko, Weld Co., Mr. Sam Rasmussen, Weld Co., Mr. Bill Haselbush, Boulder Co., Mr. Mike Laber, Boulder Co., Mr. Bob Zadel & Mr. Stan Linker, Morgan Co.

Colorado BMP Manual

The proposed manual is designed to serve as a guidance document for the development of localized BMPs. It will also serve as a technical resource of research based information and as a compilation of local BMPs as they are developed.

The proposed manual will consist of a three ring binder notebook with 12 sections, organized as follows:

Forward

An open letter to Colorado citizens
How to use this guide
Steps you can take to reduce water pollution

- Ch 1. Best Management Practices for Colorado
- Ch 2. Wellhead protection BMPs
- Ch 3. Irrigation management BMPs
- Ch 4. Nitrogen management BMPs
- Ch 5. Manure management BMPs
- Ch 6. Phosphorus management BMPs
- Ch 7. Weed control BMPs
- Ch 8. Insect control BMPs
- Ch 9. Disease control BMPs
- Ch 10. Pesticide management BMPs
- Ch 11. Record keeping BMPs
- Ch 12. Pesticide storage and handling BMPs

Appendix

Local factsheets, tables, references
Acknowledgements
Authors, reviewers, technical group and supporting agencies

Behind each chapter we will include appropriate existing Extension publications. Localized BMP factsheets will be desktop published and added to the notebook as developed.

A separate publication will be developed to specifically target the urban homeowner and applicator.

APPENDIX V

COLORADO DEPARTMENT OF HEALTH
Water Quality Control Division
Ag Chemicals Program

Executive Summary

The Agricultural Chemicals Program of CDH provides current, scientifically valid, ground water quality data to the Commissioner of Agriculture. This data assists the Commissioner in determining whether agricultural operations are impacting ground water quality. The FY-92 monitoring program focused on groundwater quality monitoring in one of Colorado's major agricultural regions, the South Platte River Valley. The Program sampled ninety six (96) domestic wells along the river from Commerce City to Julesburg. Each well was sampled once between June and August, 1992. Well samples were analyzed for basic minerals, dissolved metals, and selected pesticides. The results from this sampling program have been entered into the CDH Ground Water Quality Data System. A detailed report describing the area sampled, the protocol for sampling and analysis, and the results of the analysis will be provided to the Commissioner of Agriculture.

In addition to monitoring ground water for the presence of agricultural chemicals, the Water Quality Control Division is required to determine the likelihood that an agricultural chemical will enter the ground water. This type of determination has been described as a vulnerability analysis. As the first step in this process, a study was funded by the Division for researchers at Colorado State University to review the body of research on the subject, evaluate models developed by other states, determine the data needs and availability for these models, and evaluate the suitability of their use in the Colorado environment. The final report from CSU was received in November 1992.

Introduction

The Agricultural Chemicals Program provides the ground water monitoring and aquifer vulnerability analysis required by the Agricultural Chemicals and Ground Water Protection Act (SB 90-126). Prior to passage of this Act, a lack of groundwater quality data had prevented an accurate assessment of impacts to groundwater quality from agricultural operations. This program provides current, scientifically valid, ground water quality data that will assist the Commissioner of Agriculture in determining whether agricultural operations are impacting ground water quality. The program also assists the Commissioner in identifying those aquifers that are vulnerable to contamination. The philosophy adopted is to protect ground water and the environment from impairment or degradation due to the improper use of agricultural chemicals, while allowing for their proper and correct use.

Ground Water Monitoring Program

The FY-92 monitoring program focused on groundwater quality monitoring in one of Colorado's major agricultural regions, the South Platte River Valley. A map of the study area is provided in Figure 1. The monitoring program included sample collection, laboratory analysis, and data analysis and storage. Upon completion of the full analysis, which will include integration with previous and current studies by other agencies, this sampling program will provide the basis for determining a groundwater quality baseline for this region.

The Ag Chemicals Program of the Water Quality Control Division sampled ninety six (96) domestic wells along the river from Commerce City to Julesburg. This sampling program was the first effort to screen the entire Lower South Platte Alluvial Aquifer to establish the possible impacts and magnitude of agricultural chemical contamination. This region is characterized by intense irrigation agriculture; it contains both surface water diversions and center-pivot systems tapping a relatively shallow alluvial aquifer.

All wells were sampled once between June and August, 1992. Wells were selected for sampling based on the following factors: permitted for domestic or household use, located within the valley fill aquifer of the South Platte River or one of its major tributaries, and cooperation of the well owner. All field sampling was performed by Brad Austin and John Colbert of CDH. Field sampling procedures followed the protocol developed by the Ground Water Quality Monitoring Working Group of the Colorado Nonpoint Task Force.

Well samples were analyzed for basic minerals, dissolved metals, and selected pesticides. A list of analytes is presented in Table 1. The basic analysis was performed by the laboratory at CSU with all samples split with the CDH laboratory for nitrate and total dissolved solids for quality control evaluation. Comparison of these split parameters shows consistent results between the two laboratories.

In addition to inorganic parameters, all of the groundwater samples collected were analyzed for selected pesticides. A listing of pesticides was compiled for analysis based on those substances that have recently been, or are currently being utilized in the South Platte Valley according to agricultural officials there. Budget restrictions would not allow testing for all pesticides used in the study area. To reduce the analysis cost, each pesticide was weighted according to its chemical properties of persistence and mobility in the environment, amount of active ingredient used per acre, and the amount of acreage within the study area that pesticide was used on. Pesticides were then selected according to their final score and the ability of the laboratory to detect their presence.

The results from this sampling program have been entered into the CDH Groundwater Quality Data System recently developed at CDH. A detailed report describing the area sampled, the protocol for sampling and analysis, and the results of the analysis will be provided to the Commissioner of Agriculture early in 1993.

At the time of this report, a complete analysis of all samples has not been received from all laboratories. Preliminary analysis of nitrate and some of the pesticide data from one lab indicates that ground water in parts of the study area has been impacted by contamination from agricultural chemicals. The major inorganic contaminant of concern is nitrate. Thirty three percent (33%) of the domestic wells sampled showed nitrate levels in excess of the EPA standard for drinking water (10 mg/L). Seven different pesticides were detected, but the only pesticide detected in significant quantities was Atrazine. Of the ninety six (96) wells sampled, seven (7) had measurable levels of Atrazine, although none of these exceeded the EPA standard for drinking water. Nineteen wells showed a trace of Atrazine (detectable by the lab, but not in measurable quantity). Atrazine is a common herbicide used extensively on corn in Colorado with over one million pounds used per year.

Aquifer Vulnerability Study Summary

In addition to monitoring ground water for the presence of agricultural chemicals, the Water Quality Control Division is required to determine the likelihood that an agricultural chemical will enter the ground water. This determination is based upon the chemical properties of the chemical in question, the behavior of a particular chemical in the soil types of the region under study, the depth to ground water, the farming practices in use, and other factors. This type of determination has been described as a vulnerability analysis. As the first step in this process, a study was funded by the Division for researchers at Colorado State University to review the body of research on the subject, evaluate models developed by other states, determine the data needs and availability for these models, and evaluate the suitability for their use in the Colorado environment. The Division will then use this model to determine those areas of the state where ground water is vulnerable to contamination from agricultural chemicals. The Division can then target resources to those areas where attention is most needed.

The final report from CSU was received in November 1992. In the report, CSU establishes three levels of vulnerability assessment: a quick-look assessment; an intermediate level assessment; and a detailed assessment. The quick-look is modified from the Soil Conservation Service's (SCS) soil-pesticide interaction rating scheme. The intermediate level uses that same scheme with much greater detail in its input parameters. The detailed assessment adds the screening models Chemical Movement in Layered Soils (CMLS) for pesticides and Nitrate Leaching and Economic Analysis Package (NLEAP) for nitrates.

Update on collecting existing Ground Water Quality Data

In the FY-92 Memorandum of Understanding, the Water Quality Control Division agreed to pursue collecting, evaluating, and entering into a database all existing ground water quality data available. Several studies of ground water quality in various regions of the state have recently become available. These include: North Front Range Water Quality Planning Association (over 300 wells in Weld County over a three year period 1989-1991); State Engineers Office (60 wells in southwestern Colorado in 1992); Colorado Department of

Health (45 wells in the Delta-Montrose area in 1992, 30 wells in the San Luis Valley in 1990 and 26 wells in the High Plains in 1989). All data from these studies has been collected and entered into a database specifically designed for this purpose. In addition, historical data from the U. S. Geological Survey and U. S. EPA is currently being entered.

Several water conservancy districts are also actively engaged in collecting ground water quality data. Unfortunately, this data continues to remain unavailable due to concerns about privacy and future use of the data. The Division hopes that as the program continues and the agricultural community grows comfortable with our goals and intent, this valuable source of data will become available and enhance our understanding of the overall ground water quality of the state.

Other Activity

A follow-up sampling program is currently under way to resample, for confirmation, all wells in which any contaminant was detected at a level of concern. Surrounding wells may also be sampled, if available, to determine if the contamination is widespread or only a localized problem.

The Division intends to include in its analysis of the study area all available ground water quality data. Results from previous and on-going studies in the South Platte Valley will be integrated into the final analysis.

During the preliminary planning for sampling, CDH contacted interested parties to inform them of the sampling program and SB 90-126 and how we envisioned its implementation. CDH has coordinated closely with federal agencies, county extension agents, conservancy districts, and local health officials in the project areas.

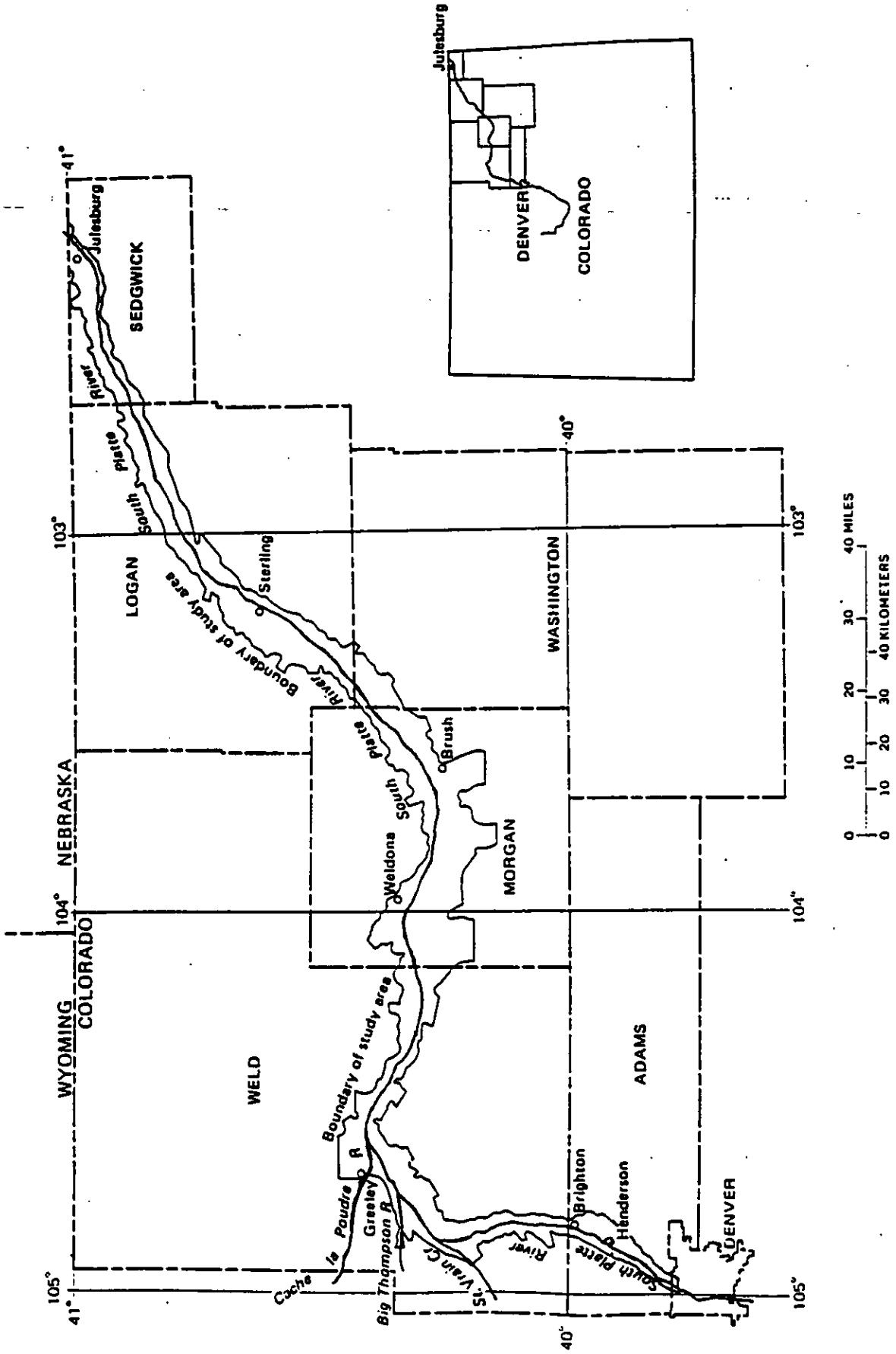


Figure 1 - Sampling area for FY-92 Monitoring Program, South Platte River Alluvial Aquifer

Table 1**SOUTH PLATTE RIVER ALLUVIAL AQUIFER
LIST OF ANALYTES****BASIC MINERALS**

Boron
Bicarbonate
Calcium
Carbonate
Chloride
Magnesium
Nitrate
pH
Sodium
Specific Conductance (TDS)
Sulfate
Potassium
Alkalinity, total
Solids, Total Dissolved
Hardness, total

DISSOLVED METALS

Aluminum
Barium
Cadmium
Chromium
Copper
Iron
Lead
Manganese
Nickel
Molybdenum
Phosphorous, total
Zinc

PESTICIDE COMPOUNDS

Trade Name	Use	Trade Name	Use
Atrazine	Herb	Ambush/Pounce	Insect
Balan	Herb	Diazinon	Insect
Bladex	Herb	Furadan	Insect
Dacthal	Herb	Lannate	Insect
Eptam	Herb	Lorsban	Insect
Evik	Herb	Malathion	Insect
IPC	Herb	Parathion	Insect
Lasso	Herb	Pennacp-M	Insect
Lexone/Sencor	Herb	Sevin	Insect
Ro-Neet	Herb	Bayleton	Fungi
Sinbar	Herb	Bravo	Fungi
Sonnalan	Herb	Temik	Nematode
Treflan	Herb		
Velpar	Herb		

APPENDIX VI

COLORADO GROUNDWATER SAMPLING PROGRAMS

Agency	Area	Date	Analysis	No. Wells
Colo. Dept. Health Ag-Chem Program	S. Platte River	92	Inorg/Pest	96
Colo. Dept. Health Ag-Chem Program	S. Platte River San Luis Valley	93	Inorg/Pest	100
State Engineers Office	West Slope	92	Inorg/Methane	60
US Geo. Survey Nat. Water Quality Assess.	S. Platte River Rio Grande River	92-93	Inorg,Org, Trace, Pest	?
Central Colo. Water Conservancy Dist.	District	92 & 93	Nitrates	50
Central Colo. Water Conservancy Dist.	Sustainable Ag Project	92 & 93	Nitrates, Pest	36
North Front Range Water Quality Assoc	Weld County	92 & 93	Nitrates, Pest	19
CSU	San Luis Valley	92 & 93	Pest, Inorg	?
Colo. Dept. of Health Drinking Water	Public drinking water supplies	93	Pest	?
Colo. Dept. Health Non-Point Source	West Slope	92	Inorg, Pest	45
Lower S. Platte River Conservancy Dist	District	92 & 93	Nitrates, Inorg	50

Pest - Pesticides
Trace - Trace minerals
Inorg - Inorganics Chemicals (calcium, chloride, sodium, etc.)
Org - Organic Chemicals (industrial solvents)

APPENDIX VII

**AGRICULTURAL CHEMICALS AND GROUNDWATER PROTECTION ACT
ADVISORY COMMITTEE**

Water Quality Control Commission

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APPENDIX VIII

Rule and Regulation Development for Bulk Storage Facilities and Mixing and Loading Areas

SB 90-126, the Agricultural Chemicals and Groundwater Protection Act, states the Commissioner of Agriculture "shall promulgate rules and regulations for bulk storage facilities and mixing and loading areas where at least fifty-five thousand pounds of finished product of agricultural chemicals are handled each year; except that any such rule and regulation shall include a three-year phase-in period for any persons subject to such rule and regulation." At the Advisory Committee's request a subcommittee consisting of members of the advisory committee and other individuals was established to develop of draft of the rules and regulations. The complete subcommittee list is on the back of this page.

The U.S. Environmental Protection Agency, states with similar laws, other agencies, chemical manufacturers with requirements for bulk storage and mixing and loading areas and individuals who had built bulk storage facilities and mixing and loading pads were all contacted and information was obtained. The subcommittee evaluated this information and through a series of meetings during the winter of 1991/1992 a draft was developed. The subcommittee's draft was presented to the full advisory committee for review and revision. Following the revisions the advisory committee requested that the draft be presented at meetings throughout the state to obtain widespread local input prior to the public hearing process. The comments obtained at these meetings will be presented to the advisory committee for discussion and further revision of the drafted regulations, as appropriate. Following this revision the formal rule making process is scheduled to begin in late 1993. This approach provides two opportunities for public input into the process. The U.S. Environmental Protection Agency failed to release proposed federal storage regulations for bulk storage of pesticides in 1992. However, the program moved forward in the implementation of this requirement in the law. By not waiting on the federal regulations which still appear to be several years away, the program continues its pro-active posture to achieve the goal of the Act which is to protect groundwater and the environment from impairment or degradation. The program continues to stay abreast of information concerning the proposed federal regulations so that our regulations will conform to what will eventually be enacted at the federal level.

Agricultural Chemicals and Groundwater Protection Act

Subcommittee on Rules and Regulations Development for Bulk Storage Facilities and Mixing & Loading Areas

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AGRICULTURAL CHEMICALS AND GROUNDWATER PROTECTION

REGULATIONS DRAFTED

For Bulk Storage and Mixing/Loading Areas

Senate Bill 90-126, the Agricultural Chemicals and Groundwater Protection Act, was enacted to protect groundwater and the environment from impairment or degradation due to the improper use of agricultural chemicals while allowing for their proper and correct use. One requirement of the Act is the creation of rules and regulations for agricultural chemical bulk storage facilities and mixing/loading areas where at least 55,000 pounds of finished product are handled annually. These rules and regulations are designed to prevent spills and leaks from contaminating groundwater.

The Colorado Agricultural Commission created an advisory committee to assist in the implementation of Senate Bill 90-126 consisting of agricultural chemical users and the public. A work group including members of the advisory committee developed a draft of potential rules and regulations. The committee reviewed and revised the work group draft and requested the potential regulations be presented at meetings held around the state to receive input on the draft.

Colorado State University Cooperative Extension and the Colorado Department of Agriculture are planning a series of public meetings in response to the Senate Bill 90-126 advisory committee request. The objective of these meetings is to present the current draft of the rules and regulations, answer questions, and receive feedback on the draft. The

feedback will be received by the advisory committee and incorporated, as appropriate, into the next draft. That draft will be presented at a series of formal public hearings in preparation of adoption of the rules and regulations. Thus the public meetings offer an opportunity for interested Coloradans to affect the content of these regulations.

Your organization has been identified as one which has a potential interest in this program. Colorado State University Cooperative Extension and the Colorado Department of Agriculture request the opportunity to present the draft rules and regulations to your group during this upcoming winter season. As appropriate, this could be accomplished at an annual meeting, board of directors meeting, or special meeting called for that purpose. A meeting format could be 45 to 90 minutes depending on the level of detail and audience participation.

Lloyd Walker, Extension Agricultural Engineer, Colorado State University/Cooperative Extension and Mitchell Yergert, Sr. Agricultural Specialist, Colorado Department of Agriculture will be presenting the drafted Rules and Regulations at public meetings throughout the state this winter. The Senate Bill 90-126 advisory committee wants to hear your response to these draft rules and regulations.

Contact Mitchell Yergert at (303) 239-4140 to schedule a presentation.

Highlights of the draft rules and regulations include:

- Bulk storage of agricultural chemicals must be in an impervious secondary containment structure capable of containing a discharge.
- Capacity of secondary containment is 125% of the volume of the largest tank in the containment structure.
- Mixing/loading of agricultural chemicals shall be performed on an impervious pad capable of containing a discharge.
- Capacity of a mixing/loading pad is 150% of the volume of the largest container (up to 1200 gallons) using the pad. Pads serving containers holding more than 1200 gallons need only be designed to the 1200 gallon container standard.
- Discharges to secondary containment or mixing/loading pads must be promptly recovered.
- Secondary containment structures and mixing/loading pads must be maintained as impervious over their service life.
- Upon adoption of these rules, compliance shall be within:

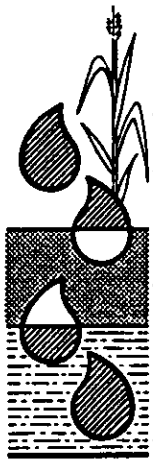
Three years for liquid pesticide secondary containment and mixing/loading areas

Five years for liquid fertilizer secondary containment and mixing/loading areas

Seven years for dry pesticide and fertilizer storage and mixing/loading areas

Ten years for secondary containment of large (over 100,000 gallons) fertilizer tanks

- Chemigation systems in compliance with the Colorado Chemigation Act shall be exempt from mixing/loading pad regulations. Tanks storing agricultural chemicals at a chemigation site will be covered by secondary containment regulations if the annual 55,000 pound handling limit is exceeded.



AGRICULTURAL CHEMICALS AND GROUNDWATER PROTECTION

FEEDBACK ON PROPOSED RULES AND REGULATIONS

Thank you for your interest in the process of developing rules and regulations for agricultural chemical bulk storage facilities and mixing and loading areas as mandated by **Senate Bill 90-126**. In this phase of the process, your comments on the proposed rules and regulations are being sought. Please list your comments under the appropriate section head.

SCOPE OF RULES AND REGULATIONS

SECONDARY CONTAINMENT FOR THE STORAGE OF LIQUID AGRICULTURAL CHEMICALS

MIXING AND LOADING AREAS FOR LIQUID AGRICULTURAL CHEMICALS

**OPERATIONS OF LIQUID AGRICULTURAL CHEMICAL PRIMARY AND
SECONDARY CONTAINMENT FACILITIES AND MIXING AND LOADING AREAS**

DRY BULK AGRICULTURAL CHEMICALS

OPERATIONS - ALL FACILITIES

SITE PLAN DESIGN AND CONSTRUCTION

CHEMIGATION SYSTEMS

COMPLIANCE SCHEDULE

Please return this feedback sheet to:

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Brad Austin
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AGRICULTURAL CHEMICALS AND GROUNDWATER PROTECTION

SUMMARY OF DRAFT RULES AND REGULATIONS FOR BULK STORAGE FACILITIES AND MIXING AND LOADING AREAS FOR FERTILIZERS AND PESTICIDES

By
Lloyd R. Walker
Extension Agricultural Engineer
Colorado State University
Cooperative Extension

This summary is meant to highlight the draft rules and regulations developed to fulfill requirements of Senate Bill 90-126. It covers only key points and is meant to convey a general overview. For a complete copy of the draft rules and regulations, contact Mitch Yergert, Colorado Department of Agriculture.

Scope of Rules and Regulations

Applicable to all operating bulk storage facilities and mixing and loading areas where at least 55,000 pounds of finished product of agricultural chemicals are handled annually. An exemption to the storage regulations is granted where the product is stored in individual containers less than 55 gallons (liquid) or 100 pounds (dry) or in approved mini-bulk containers.

Secondary Containment for the Storage of Liquid Agricultural Chemicals

All liquid agricultural chemical containers must be stored in an impervious secondary containment structure (SCS) capable of containing a discharge. Capacity of SCS is up to 125 percent of the volume of the largest container in the structure. Walls shall be of such a height as to allow easy inspection and egress. Floor of the SCS shall be sloped to drain to a shallow sump. Discharges or precipitation accumulations in an SCS shall be promptly recovered by an operator controlled pump. SCS must be maintained as impervious over its service life. Special requirements apply to very large (over 100,000 gallons) fertilizer storage containers.

Mixing and Loading Areas for Liquid Agricultural Chemicals

All mixing and loading operations must take place on an impervious mixing and loading pad (MLP). Capacity of MLP is 150 percent of the volume of the largest container (up to 1200 gallons) using the pad. MLP serving containers holding more than 1200 gallons need only be designed to the 1200 gallon container standard. MLP shall be designed to handle wheel loads of vehicles served. MLP shall be sloped to drain to a shallow sump. Discharges or precipitation accumulations in an MLP shall be promptly recovered by an operator-controlled pump. MLP must be maintained as impervious over its service life.

Operations of Liquid Agricultural Chemical Primary and Secondary Containment Facilities and Mixing and Loading Areas

Storage containers and appurtenances shall be designed and constructed of materials which are resistant to corrosion, puncture or cracking and can handle operating stresses. Storage containers shall be secured to prevent flotation or instability. Storage container connections, except safety relief connections, shall be equipped with a shut-off valve. Plumbing shall be adequately supported and a flexible connection is required between plumbing and storage containers. Every storage container shall have a device or method for measuring liquid level. Pesticide storage containers shall be properly labeled and equipped with a pressure regulated vent. Abandoned storage containers shall be thoroughly cleaned.

Dry Bulk Agricultural Chemicals

Dry bulk agricultural chemicals (DBAC) shall be stored inside a sound structure. Floor of the structure shall be constructed of a material to prevent downward movement of DBAC and moisture through the floor. All handling of DBAC shall be done on a mixing and loading pad constructed of an impervious material and designed to handle wheel loads of vehicles served. The pad must be maintained as impervious for the life of the structure.

Operations-All Facilities

All agricultural chemicals in the facilities shall be secured against access by unauthorized persons. Valves on storage containers shall be locked except when persons responsible for facility security are on site. A device or method to prevent back flow in the water supply line shall be installed. Regular inspection and maintenance of the facility shall be performed. If operations at a facility are discontinued, Colorado Department of Agriculture must be notified, all agricultural chemical product removed and storage containers cleaned.

Site Plan Design and Construction

Design of bulk storage facilities and mixing and loading areas must be signed and sealed by a Colorado registered professional engineer.

Chemigation Systems

Chemigation systems in compliance with the Colorado Chemigation Act shall be exempt from mixing and loading pad regulations. Storage containers for agricultural chemicals at a chemigation site will be covered by secondary containment regulations if the annual 55,000-pound product handling limit is exceeded.

Compliance Schedule

Upon adoption of these rules compliance shall be within:

Three years for liquid pesticide secondary containment and mixing and loading areas, and leak detection system installation for very large fertilizer storage containers.

Five years for liquid fertilizer secondary containment and mixing and loading areas.

Seven years for dry agricultural chemical storage and mixing and loading areas.

Ten years for secondary containment of very large fertilizer storage containers.



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