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IDAHO GROUND WATER QUALITY PLAN

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*Protecting*  
GROUNDWATER  
Q · U · A · L · I · T · Y  
I N I D A H O



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# IDAHO GROUND WATER QUALITY PLAN

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Prepared by the Ground Water Quality Council  
in cooperation with the:

Idaho Department of Health and Welfare  
Division of Environmental Quality,  
Department of Water Resources, and  
Department of Agriculture

December 1996

THE STATE OF IDAHO  
CENTENNIAL LEGISLATURE FIRST REGULAR SESSION – 1989  
  
IN THE SENATE

SENATE BILL NO. 1269

BY STATE AFFAIRS COMMITTEE

AN ACT

1 RELATING TO GROUND WATER QUALITY; AMENDING SECTION 39-102; IDAHO  
2 CODE, TO PROVIDE LEGISLATIVE INTENT REGARDING GROUND WATER  
3 QUALITY; AMENDING CHAPTER 1, TITLE 39, IDAHO CODE, BY THE  
4 ADDITION OF NEW SECTIONS 39-120, 39-121, 39-122, 39-123, 39-124, 39-125, 39-  
5 126 AND 39-127, IDAHO CODE, TO DESIGNATE THE DEPARTMENT OF  
6 HEALTH AND WELFARE AS THE PRIMARY AGENT TO COORDINATE AND  
7 ADMINISTER GROUND WATER QUALITY PROTECTION PROGRAMS FOR THE  
8 STATE, TO PROVIDE THE SCOPE AND DUTIES OF THE GROUND WATER  
9 QUALITY COUNCIL AND CERTAIN STATE AGENCIES, TO DEFINE TERMS, TO  
10 CREATE THE GROUND WATER QUALITY COUNCIL, TO PROVIDE FOR COMPLETION  
11 OF THE GROUND WATER QUALITY PLAN, TO PROVIDE FOR ADOPTION,  
12 AMENDMENT OR REJECTION OF THE PLAN BY THE LEGISLATURE, TO  
13 PROVIDE FOR A CHAIRMAN AND QUORUM OF THE GROUND WATER  
14 QUALITY COUNCIL, TO PROVIDE DUTIES OF STATE AND LOCAL  
15 GOVERNMENTS REGARDING THE GROUND WATER QUALITY PLAN, AND  
16 TO PROVIDE FOR LIABILITY FOR APPLICATION OF A PESTICIDE OR FERTILIZER  
17 PRODUCT; AMENDING CHAPTER 65, TITLE 67, IDAHO CODE, BY THE  
18 ADDITION OF A NEW SECTION 67-6537, IDAHO CODE, TO PROVIDE FOR  
19 LOCAL GOVERNMENT'S COMPREHENSIVE PLAN TO GROUND WATER  
20 QUALITY; AND PROVIDING A SHORT TITLE.

21  
22 Be It Enacted by the Legislature of the State of Idaho:

23  
24 SECTION 1. That Section 39-102, Idaho Code, be, and the same is hereby amended  
25 to read as follows:

26  
27 39-102. STATE POLICY ON ENVIRONMENTAL PROTECTION. 1. It is hereby recognized  
28 by the legislature that the protection of the environment and the promotion of  
29 personal health are vital concerns and are therefore of great importance to the future  
30 welfare of this state. It is therefore declared to be the policy of the state to provide for the  
31 protection of the environment and the promotion of personal health and to thereby protect  
32 and promote the health, safety and general welfare of the people of this state.

33 2. The goal of the legislature in enacting the ground water quality protection act of  
34 1989 shall be to maintain the existing high quality of the state's ground water and to satisfy  
35 existing and projected future beneficial uses including drinking water, agricultural,  
36 industrial and aquacultural water supplies. All ground water shall be protected as  
37 a valuable public resource against unreasonable contamination or deterioration. The quality  
38 of degraded ground water shall be restored where feasible and appropriate to  
39 support identified beneficial uses.

40 3. In enacting this law, the legislature intends to prevent contamination of ground  
41 water from point and nonpoint sources of contamination to the maximum extent practical.  
42 In attaining the goals enumerated in subsections 1 and 2 of this section, the legislature  
43 wishes to enumerate the following ground water protection goals:

44 a. It is the policy of the state to prevent contamination of ground water from any  
45 source to the maximum extent practical.

46 b. The discovery of any contamination that poses a threat to existing or projected future  
47 beneficial uses of ground water shall require appropriate actions to prevent further

1       ther contamination. These actions may consist of investigation and evaluation or en-  
2       forcement actions if necessary to stop further contamination or clean up existing  
3       contamination as required under the environmental protection and health act.  
4       c. All persons in the state should conduct their activities so as to prevent the nonreg-  
5       ulated release of contaminants into ground water.  
6       d. Education of the citizens of the state is necessary to preserve and restore ground  
7       water quality.

8  
9       SECTION 2. That Chapter 1, Title 39, Idaho Code, be, and the same is hereby  
10      amended by the addition thereto of NEW SECTIONS, to be known and designated as  
11      Sections 39-120, 39-121, 39-122, 39-123, 39-124, 39-125, 38-126 and 39-127, Idaho Code,  
12      and to read as follows:

13  
14      39-120. DEPARTMENT OF HEALTH AND WELFARE PRIMARY  
15      ADMINISTRATIVE AGENCY — AGENCY RESPONSIBILITIES. 1. The department of  
16      health and welfare is designated as the primary agency to coordinate and administer  
17      ground water quality protection programs for the state.

18      2. Recognizing that the department of water resources has the responsibility to  
19      maintain the natural resource geographic information system for the state and is the col-  
20      lector of baseline data for the state's water resources, that the department of health and  
21      welfare has the responsibility for collecting and monitoring data for water quality man-  
22      agement purposes and that the department of agriculture is responsible for regulating  
23      the use of pesticides and fertilizers and for licensing applicators, the department of  
24      health and welfare, the department of water resources and the department of  
25      agriculture in coordination with the ground water quality council shall:

26      a. Make plans for development and administration of a comprehensive ground  
27      water quality monitoring network, including point of use, point of contamination  
28      and problem assessment monitoring sites across the state and the assessment of am-  
29      bient ground water quality utilizing, to the greatest degree possible, collection and  
30      coordination of existing data sources.

31      b. Prepare an annual report during the life of the council detailing the number and  
32      concentration of contaminants detected in ground water by location.

33      c. Establish a system or systems within state departments and political subdivisions  
34      of the state for collecting, evaluating and disseminating ground water quality data  
35      and information.

36      d. Develop and maintain a natural resource geographic information system and  
37      comprehensive water resource data system. The system shall be accessible to the  
38      public.

39      3. The responsible state departments or boards, after consultation with the ground  
40      water quality council, should adopt rules which specify the general standards for deter-  
41      mining actions necessary to prevent ground water contamination and cleanup actions  
42      necessary to meet the goals of the state.

43      4. The board of health and welfare may adopt, by rule, after consultation with the  
44      ground water quality council, ambient ground water quality standards for contaminants  
45      for which the administrator of the United States environmental protection agency  
46      has established drinking water maximum contaminant levels. The board, after consultation  
47      with the ground water quality council, may adopt by rule such ground water quality  
48      standards for contaminants for which the administrator has not established drinking  
49      water maximum contaminant levels. However, the existence of such standards, or the  
50      lack of them, should not be construed or utilized in derogation of the ground water  
51      quality protection goal and protection policies of the state.

52      5. The departments of health and welfare, water resources and agriculture should  
53      take actions necessary to promote and assure public confidence and public awareness of  
54      ground water quality protection. In pursuing this goal, the departments and public  
55      health districts should make public the results of investigations concerning ground  
56      water quality subject to the restrictions contained in section 39-111, Idaho Code.



1 39-121. DEFENITIONS. As used in section 39-102, Idaho Code, and in sections 39-120  
2 through 39-127, Idaho Code:

3 1. "Cleanup" means removal, treatment or isolation of a contaminant from ground  
4 water through the directed efforts of humans or the removal or treatment of a contami-  
5 nant in ground water through management practice or the construction of barriers,  
6 trenches and other similar facilities for prevention of contamination, as well as the use  
7 of natural processes such as ground water recharge, natural decay and chemical or bio-  
8 logical decomposition.

9 2. "Contaminant" means any chemical, ion, radionuclide, synthetic organic  
10 compound, microorganism, waste or other substance which does not occur naturally in  
11 ground water or which naturally occurs at a lower concentration.

12 3. "Contamination" means the direct or indirect introduction into ground water of  
13 any contaminant caused in whole or in part by human activities.

14 4. "Council" or "ground water quality council" means the ground water quality  
15 council created in section 39-122, Idaho Code.

16 5. "Ground water" means any water of the state which occurs beneath the surface of  
17 the earth in a saturated geological formation of rock or soil.

18  
19 39-122. GROUND WATER QUALITY COUNCIL CREATED. 1. There is hereby cre-  
20 ated the ground water quality council. Membership on the council shall consist of the  
21 following:

- 22 a. The director of the department of health and welfare or his designee.
- 23 b. The director of the department of water resources or his designee.
- 24 c. The director of the department of agriculture or his designee.
- 25 d. A member of a district board of health appointed by the governor.
- 26 e. One (1) representative of the mining industry appointed by the governor.
- 27 f. One (1) representative of the agricultural industry or the feedlot or dairy industry  
28 appointed by the governor.
- 29 g. One (1) representative of the soil conservation districts or the soil conservation  
30 commission appointed by the governor.
- 31 h. One (1) representative of an environmental group or organization appointed by  
32 the governor.
- 33 i. One (1) member of the general public appointed by the governor.
- 34 j. One (1) representative of the petroleum industry appointed by the governor.
- 35 k. One (1) representative of the agricultural chemical manufacturing or distribution  
36 industry appointed by the governor.
- 37 l. One (1) representative of city government appointed by the governor.
- 38 m. One (1) representative of the food processing industry appointed by the  
39 governor.
- 40 n. One (1) representative of the manufacturing industry which generates hazardous  
41 waste appointed by the governor.
- 42 o. One (1) representative of the hazardous waste treatment, storage or disposal  
43 industry appointed by the governor.
- 44 p. One (1) representative of county government appointed by the government.
- 45 q. One (1) representative of a conservation organization appointed by the governor.
- 46 r. Additionally, the governor shall appoint representatives of the university of Idaho  
47 college of mines, the university of Idaho water resources research institute, the  
48 United States environmental protection agency, the Idaho national engineering labo-  
49 ratory and the United States geological survey to serve as ex officio nonvoting mem-  
50 bers of the ground water quality council.

51 2. Appointees to the ground water quality council shall serve at the pleasure of the  
52 governor.

53 3. Members of the ground water quality council who are not state employees shall  
54 be entitled to receive compensation as provided in section 59-509(b), Idaho Code.

55 4. The council by majority vote shall establish operating procedures. The operating  
56 procedures shall be made available for public review.

1           5. In the conduct of its business, the council shall solicit the advice of, and consult  
2 periodically with the cities, counties, private entities and persons within the state for the  
3 purpose of receiving information that may be helpful in the preparation of the ground  
4 water quality protection plan.

5           6. Following final approval of the ground water quality protection plan by the legis-  
6 lature, the council shall exist for up to two (2) years to see the progress made in  
7 implementing the provisions of the plan. If not reauthorized by the legislature following  
8 the two (2) years after the legislature's adoption of the plan, the council shall disband.

9  
10           39-123. COMPLETION OF GROUND WATER QUALITY PLAN. 1. Not later than  
11 June 1, 1990, the ground water quality council shall prepare a ground water quality plan  
12 which shall comply with the direction enumerated in sections 39-102 and 39-120, Idaho  
13 Code.

14           2. The plan shall:

15           a. Describe the state's overall approach to protecting its ground water.

16           b. Take into account existing beneficial uses and existing ground water quality.

17           c. Identify existing authorities and programs to protect ground water quality.

18           d. Propose legislative, administrative and economic mechanisms to protect ground  
19 water quality.

20           e. Review and make recommendations on plans for development and  
21 administration of a comprehensive ground water monitoring network, including  
22 point of use, point of contamination and problem assessment monitoring sites across  
23 the state and the assessment of ambient ground water quality utilizing, to the great-  
24 est extent possible, collection and coordination of existing data sources.

25           f. Include programs to promote and assure public awareness of ground water  
26 protection.

27           Upon completion of the plan, the council shall publish a notice after giving twenty (20)  
28 days' notice as provided in section 60-109, Idaho Code, in one (1) or more newspapers  
29 and shall issue a statewide news release announcing the availability of the plan for  
30 inspection by interested persons. The announcement shall indicate where and how the  
31 plan may be obtained or reviewed and shall indicate that not less than three (3) public  
32 hearings shall be conducted at various locations in the state before formal adoption. The  
33 first public hearing shall not be held until forty-five (45) days have elapsed from the  
34 date of the notice announcing the availability of the plan. After public hearings, the  
35 council shall prepare a written summary of the comments received, provide comments  
36 on the major concerns raised, make amendments to the plan as necessary and shall for-  
37 mally adopt the plan, and shall submit the plan to the legislature at the first regular ses-  
38 sion of the legislature following adoption of the plan.

39  
40           39-124. AMENDMENT OR REJECTION OF PLAN. The legislature shall amend,  
41 adopt or reject the plan by passage of a statute at the regular legislative session when it  
42 receives the plan. If the plan is amended or rejected, the legislature shall indicate the rea-  
43 sons for amendment or rejection by passage of a statute and return the plan to the  
44 ground water quality council. After action by the legislature, the plan shall have the  
45 force and effect of law.

46  
47           39-125. CHAIRMAN – QUORUM. The chairman of the council shall be the director  
48 of the department of health and welfare or his designee. A majority of members shall  
49 constitute a quorum for the transaction of business. In the event a vacancy occurs on the  
50 council, a replacement shall be appointed in the same manner as an original member.  
51 The department of health and welfare shall pay the expenses and per diem of all mem-  
52 bers of the ground water quality council who are not state employees.

53  
54           39-126. DUTIES OF STATE AND LOCAL UNITS OF GOVERNMENT. 1. All state  
55 agencies shall incorporate the adopted ground water quality protection plan in the ad-  
56 ministration of their programs and shall have such additional authority to promogulate  
57 rules and regulations to protect ground water quality as necessary to administer such

1 programs which shall be in conformity with the ground water quality protection plan.  
2 Cities, counties and other political subdivisions of the state shall incorporate the ground  
3 water quality protection plan in their programs and are also authorized and encouraged  
4 to implement ground water quality protection policies within their respective jurisdic-  
5 tions, provided that the implementation is consistent with and not preempted by the  
6 laws of the state, the ground water quality protection plan and any rules or regulations  
7 promogulated thereunder. All state agencies, cities, counties and other political subdivi-  
8 sions shall cooperate with the ground water quality council, the department of health  
9 and welfare, the department of agriculture and the department of water resources in  
10 disseminating public information and education materials concerning the use and pro-  
11 tection of ground water quality, in collecting ground water quality management data,  
12 and in conducting research on technologies to prevent or remedy contamination of  
13 ground water.

14 2. Notwithstanding any other provision of law to the contrary, except as provided in  
15 subsection 3 of this section, whenever a state agency, city, county or other political sub-  
16 division of the state issues a permit or licenses which deals with the environment, the en-  
17 tity issuing the permit or license shall take into account the effect the permitted or  
18 licensed activity will have on the ground water quality of the state and it may attach  
19 conditions to the permit or license in order to mitigate potential or actual adverse effects  
20 from the permitted or licensed activity on the ground water quality of the state. Nothing  
21 contained in this section shall authorize a state agency, city, county or other political  
22 subdivision of the state to issue or require a permit or a license which it is not otherwise  
23 allowed by law to issue or require.

24 3. Except as otherwise provided by the ground water quality protection plan, if a  
25 permit or license which deals with the environment is required to be obtained from a  
26 state agency and that agency considers the effect of the permitted or licensed activity on  
27 ground water quality, after notice to other units of government which may otherwise  
28 have regulatory authority over the activity which is the subject of the permit or license,  
29 a city, a county or other political subdivision of the state shall not prohibit, limit or other-  
30 wise condition the rights of the permittee or licensee under the permit or license on ac-  
31 count of the effect the permitted or licensed activity may have on ground water quality.

32 Nothing contained in this section shall be deemed to permit cities, counties or other  
33 political subdivisions of the state to regulate ground water quality with respect to any  
34 activity for which another statute or other statutes may have expressly or impliedly pre-  
35 empted such local ground water quality regulation.

36  
37 39-127. APPLICATION OF FERTILIZERS AND PESTICIDES. No person shall be li-  
38 able for ground water contamination resulting from the application of fertilizers or pes-  
39 ticides if the person applies a fertilizer according to generally accepted agronomic  
40 practices, or applies a pesticide product registered under the federal insecticide, fungi-  
41 cide, rodenticide act according to label requirements, including precautionary  
42 statements, of the U.S. environmental protection agency, and such application of the  
43 pesticide or fertilizer is otherwise done with the proper equipment required by law, is  
44 without negligence and is in accordance with state laws.

45  
46 SECTION 3. That Chapter 65, Title 67, Idaho Code, be, and the same is hereby  
47 amended by the addition thereto of a NEW SECTION, to be known and designated as  
48 Section 67-6537, Idaho Code, and to read as follows:

49  
50 67-6537. APPLICATION TO GROUND WATER. When considering amending,  
51 repealing or adopting a comprehensive plan, the local governing board shall consider  
52 the effect the proposed amendment, repeal or adoption of the comprehensive plan  
53 would have on the quality of ground water in the area.

54  
55 SECTION 4. SHORT TITLE. This act may be known and cited as the "Ground Water  
56 Quality Protection Act of 1989."

LEGISLATURE OF THE STATE OF IDAHO  
FIFTY-FIRST LEGISLATURE SECOND REGULAR SESSION – 1992

IN THE SENATE

SENATE BILL NO. 1321

BY RESOURCES AND ENVIRONMENT COMMITTEE

AN ACT

1 RELATING TO THE GROUND WATER QUALITY PLAN; PROVIDING LEGISLATIVE  
2 ADOPTION OF THE IDAHO GROUND WATER QUALITY PLAN.  
3

4 Be It Enacted by the Legislature of the State of Idaho:  
5

6 SECTION 1. Pursuant to the requirements of Section 39-124, Idaho Code, the  
7 Legislature of the State of Idaho does hereby adopt the Idaho Ground Water Quality  
8 Plan finally adopted by the Ground Water Quality Council on November 14, 1991,  
9 as provided in Section 39-123, Idaho Code.



# IDAHO GROUND WATER QUALITY PLAN

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# GROUND WATER QUALITY COUNCIL

## List of Council Members

<i>Name</i>	<i>Representing</i>
Joe Nagel, Council Chairman Administrator, Division of Environmental Quality	Department of Health & Welfare Boise, Idaho
R. Keith Higginson Director, Idaho Department of Water Resources	Department of Water Resources Boise, Idaho
Rodney Awe Administrator, Agricultural Technology Division	Department of Agriculture Boise, Idaho
W. James Burns, Jr. Chairman, Panhandle District Health Department, Board of Health	District Boards of Health Coeur d' Alene, Idaho
Jack Lyman Executive Director, Idaho Mining Assoc.	Mining Industry Boise, Idaho
Jim Yost Assistant Director Public Affairs, Idaho Farm Bureau	Agriculture, Feedlot & Dairy Industry Boise, Idaho
Don Kramer Member, Idaho Association of Soil Conservation Districts	Soil Conservation Districts and Soil Conservation Commission Castleford, Idaho
Ned Bowler Member, Hagerman Valley Citizen Alert, Inc.	Environmental Group Bliss, Idaho
Bruce Smith Attorney-at-Law, Rosholt Robertson & Tucker	General Public Boise, Idaho
Matt Eames Sr. Legislative Affairs Representative, Idaho Power	Petroleum Industry Boise, Idaho

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Snake River Chemical, Inc.

Agricultural Chemical  
Manufacturing/Distribution  
Caldwell, Idaho

Jay Webb  
Boise City Councilman

City Government  
Boise, Idaho

Frank Krone  
General Manager,  
Dairyman's Creamery Association

Food Processing Industry  
Caldwell, Idaho

Tom Korpalski  
Risk Minimization/Loss Prevention Manager  
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Manufacturing/Hazardous Waste  
Boise, Idaho

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Director Environmental Affairs,  
Food Group, J.R. Simplot Co.

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Boise, Idaho

Nancy Johansen  
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County Government  
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Michael Ortega  
Community Organizer,  
Idaho Citizens Network

Conservation Organization  
Pocatello, Idaho

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Dale Ralston, Ph. D.,  
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College of Mines  
Moscow, Idaho

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Warren McFall  
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Idaho National Engineering Lab  
Idaho Falls, Idaho

Jerry Hughes  
Water Resources Division,  
Idaho District Chief

U.S. Geological Survey  
Boise, Idaho

## **AGENCY SUPPORT STAFF**

Significant time and resources were provided by the following agency personnel to support the Ground Water Quality Council's development of this plan.

*Idaho Department of Health and Welfare  
Division of Environmental Quality  
Water Quality Bureau*

Nancy Bowser  
Sally Goodell  
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Paul Jehn  
Gerry Winter

*Idaho Department of Water Resources*

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Paul Castelin  
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John Mitchell  
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*Idaho Department of Agriculture  
Agricultural Technology Division*

Patrick McGourty  
Dan Whitney

*Idaho State Soil Conservation Commission*

Jim Cornwell  
Wayde Faude  
Lee Holstine

*USDA Soil Conservation Service*

Floyd Bailey  
Jim Wood

*Boise City*

Catherine Chertudi

Many other individuals, agencies and entities contributed technical expertise and resources on specific issues during development of the Ground Water Quality Plan.

## **FOREWORD**

The Ground Water Quality Plan you have before you is the culmination of more than eight years of negotiations, false starts at regulations, legislative committee hearings, and a year and a half of meetings. For some members of the Ground Water Quality Council there were weekly meetings for several months. All members of the Council spent many days diligently learning, exploring and investigating the issues associated with ground water quality and quantity. They learned, among other things, that in Idaho, ground water is two words. The Council members endured and enjoyed many days together, in agreement and disagreement, before finally producing this plan. All deserve our acknowledgement and recognition for the enormous efforts in producing a plan that represents a progressive and sound approach to ground water quality management.

On behalf of all members of the Ground Water Quality Council, we wish to expressly acknowledge those efforts of the three agencies with major input in this plan: the Idaho Department of Health and Welfare-Division of Environmental Quality (IDHW-DEQ), the Idaho Department of Water Resources (IDWR), and the Idaho Department of Agriculture (IDA). Without the support and help of the staff of three agencies, this document would never have been possible.

Special thanks are due to the IDHW-DEQ staff assigned to the Council. They have taken the days of discussion and translated it into proposed language for the Council to revise again and again. They have provided technical, legal, editorial and clerical support.

We would also like to acknowledge the Idaho State Soil Conservation Commission, the University of Idaho Cooperative Extension Service and USDA Soil Conservation Service for their participation in meetings and contributions of important background information. We thank, in addition, participants in the Spring 1990 Ground Water Quality Monitoring Workshop who helped develop recommendations for implementing a monitoring program.

We thank the state and federal agency members of the Council who offered the support of their staff and the drafting subgroup members who helped distill hours of discussion from Council meetings into proposed draft language.

Finally, we thank the employers of those of us with full time jobs, who have been generous in giving us the opportunity to serve on this important panel. Their support is appreciated and acknowledged.

## HOW TO USE THIS DOCUMENT

The following user's guide has been developed to help you understand this plan.

The plan is divided into four major parts:

- ***Executive Summary***  
If you are interested in obtaining a brief overview of the entire plan, read the Executive Summary at the beginning of the document.
- ***Introduction and Background Information***  
If you are interested in the need for a protection plan, an overview of ground water in the state and sources of contamination, then read the Introduction and background information sections. The background information includes the sections entitled Goals and Requirements of the Act, Overview of Idaho's Ground Water and Identification of Contamination Sources.
- ***Ground Water Policies and Implementation Strategies***  
The section entitled Ground Water Quality Policies provides guidance and direction on issues that are critical to ground water protection. Each policy statement is accompanied by a rationale to explain why that issue is important to ground water protection and an implementation strategy for the policy. The implementation items provide specific direction to agencies on voluntary and regulatory protection efforts and remediation of contamination. This section provides a comprehensive guide for implementation to maintain the high quality of ground water or to remediate in the event of contamination.
- ***Ground Water Quality Monitoring Program***  
If you are interested specifically in ground water quality monitoring at the statewide, regional or local level, look at the Ground Water Quality Monitoring Program. This section also provides guidelines for the ground water information data system.



## **PUBLIC PROCESS FOR REVIEWING AND COMMENTING ON THE GROUND WATER QUALITY PLAN**

The Ground Water Quality Protection Act of 1989 created the Ground Water Quality Council and directed them to develop a Ground Water Quality Plan. This act also outlined the role that the public should play in the development process of the plan.

A public process for the Ground Water Quality Plan is specifically addressed in Section 39-123 of Idaho Code which states:

“...Upon completion of the plan, the Council shall publish a notice after giving twenty days notice as provided in section 60-109, Idaho Code, in one or more newspapers and shall issue a statewide news release announcing the availability of the plan for inspection by interested persons. The announcement shall indicate where and how the plan may be obtained or reviewed and shall indicate that not less than three public hearings shall be conducted at various locations in the state before formal adoption. The first public hearing shall not be held until forty-five days have elapsed from the date of the notice announcing the availability of the plan. After public hearings, the Council shall prepare a written summary of the comments received, provide comments on the major concerns raised, make amendments to the plan as necessary and shall formally adopt the plan, and shall submit the plan to the legislature at the first regular session of the legislature following adoption of the plan.”

The required procedural steps were followed carefully and, in some instances, expanded to provide additional opportunities for public participation. Public notices were published in six major newspapers around the state for 21 days. An aggressive public information campaign ran concurrently with the public notice and review period in an added effort to raise public awareness of the plan. A flyer was mailed out with a return card enclosed to request a copy of the plan. Over 1900 copies of the plan were distributed as a result of public requests. Public information meetings were held during July and August 1991, in Coeur d' Alene, Lewiston, Boise, Twin Falls, Pocatello and Idaho Falls, where presentations were made by Ground Water Quality Council members and agency support staff on the plan.

Following the forty-five day public review period, formal hearings were held during September 1991, in six locations including Coeur d' Alene, Lewiston, Boise, Twin Falls, Pocatello and Idaho Falls to provide opportunity for oral and written testimony. Written comments were accepted during the entire review and comment period.

The Council considered all public comments that were submitted orally or in writing and incorporated significant comments into the text of the plan. A complete listing of all public comments and Council responses received on the plan, can be found in Appendix A.

## **EXECUTIVE SUMMARY**

While there are many federal and state laws on water quality and ground water, there is no comprehensive approach for ground water quality protection for Idaho. The Ground Water Quality Protection Act of 1989 created the Ground Water Quality Council and directed them to develop a ground water quality protection plan and a ground water monitoring program for Idaho. This legislation came about due to increasing concern over the quality of Idaho's ground water. It is the result of coordinated efforts of citizens, industry representatives and policy makers.

The twenty-two member Ground Water Quality Council is comprised of many interest groups specifically to bring a broad range of expertise to the development of the plan. The diversity of perspective and expertise created the best approach possible to consider ground water issues in Idaho.

The Ground Water Quality Plan is a planning document, and as such should be regarded as a first step in providing comprehensive ground water quality protection for Idaho. It establishes the basis for continuing efforts to protect ground water now, and for future generations. It emphasizes the need to anticipate and prevent ground water contamination whenever possible, because cleaning up ground water contamination is difficult and very costly. The plan further provides agencies with direction to develop management programs and regulations and to implement ground water quality protection strategies.

The Ground Water Quality Plan is prepared as the master plan to manage protection of ground water quality, prevention of ground water contamination and remediation of contaminated ground water. It is meant to work in conjunction with the Idaho State Water Plan. Every management plan or set of regulations currently in existence on surface water or ground water related activities will be evaluated and revised if necessary to assure consistency with the Ground Water Quality Plan.

Ground water is an essential resource for Idaho, supplying over 90 percent of the state's drinking water. Idaho ranks in the top five states in the United States for volume of ground water used, with the major use being irrigation.

Ground water is subject to contamination from many sources, both nonpoint sources and point sources:

- Nonpoint sources of contamination include urban storm water drainage, agricultural practices, and on-site sewage systems. These sources are referred to as "nonpoint" because they cannot be traced to a specific point of discharge, but come from diffuse or multiple discharges of contaminants that spread over a large area.
- Point sources of contamination have individually identifiable points of discharge. Common point sources include leaking underground storage tanks, a surface spill of hazardous materials, injection wells, and industrial discharges.

## ***Goal and Policies of the Plan***

Recognizing ground water's susceptibility to contamination, the primary goal established by the Council for the ground water quality protection plan is:

...to provide for the protection of human health and the environment by maintaining the existing high quality of the state's ground water while satisfying existing and projected future beneficial uses. All ground water shall be protected as a valuable public resource against unreasonable contamination or deterioration. The quality of degraded ground water shall be restored where feasible and appropriate to support beneficial uses....

This goal is elaborated in the following series of policies intended to provide an overall protection strategy:

- The Ground Water Quality Protection policy is intended to maintain and protect the existing high quality of the state's ground water.
- The Existing and Future Beneficial Uses policy establishes the goal of maintaining and protecting existing and projected future beneficial uses.
- Categorization of Ground Water provides three levels of protection for ground water based on vulnerability of the ground water, beneficial uses, and existing ground water quality.
- The Ground Water Quality Standards policy gives the direction needed to develop numerical standards that will provide a minimum level of protection for beneficial uses.
- Prevention of Ground Water Contamination emphasizes the need to prevent contamination of ground water from regulated and nonregulated sources of contamination.
- The Agricultural Chemical and Nutrient Management policy provides for application of agricultural chemicals or nutrients to crops so that they will not impair beneficial uses below the crop root zone.
- The Mining policy is intended to protect ground water while allowing for the extraction of minerals.
- Public Education on Ground Water Quality emphasizes the need to provide educational programs on ground water protection, prevention of ground water contamination and ground water restoration.
- Ground Water Quality Research should be conducted on ground water protection issues and remediation technologies.
- Public Participation in Ground Water Activities requires that agencies provide information to the public and encourage public participation in ground water quality protection activities.
- The Local/State Government Interaction policy requires all cities, counties and other political subdivisions of the state to integrate the Ground Water Quality Plan into their existing programs and authorizes them to implement the provisions of the plan within their local jurisdiction.
- The Local/State Consistency policy allows local units of government to have flexibility in implementing the plan while maintaining the overall consistency of ground water quality management throughout the state.
- The Federal Consistency policy establishes the same level of protection for ground water located under federal lands as other ground water in the state.

- The Interstate/Interprovincial/Tribal Agreements policy addresses the need to develop a joint plan to manage aquifers that cross jurisdictional boundaries.
- Agency Roles in Ground Water Programs will be clearly defined to enhance cooperative efforts, eliminate duplication of effort and to provide the most efficient implementation of the plan.
- The Statewide Ground Water Quality Monitoring Network policy provides the framework for implementing and maintaining an ongoing statewide ambient monitoring program.
- The Regional and Local Ground Water Monitoring policy provides the direction for implementing and maintaining ongoing regional and local ground water monitoring, including water quality monitoring to evaluate the effectiveness of Best Management Practices (BMPs).
- The Artificial Recharge of Ground Water Aquifers policy requires that artificial recharge products be consistent with the policies and management objectives for water quality and quantity in the Ground Water Quality Plan and the Idaho State Water Plan.
- The Publicly Funded Ground Water Data Standards policy assures that ground water quality monitoring and data gathering activities are consistent with the overall Ground Water Quality Monitoring Program.
- The Idaho Environmental Data Management System is being created to include data from past, present and future ground water quality monitoring projects. Any data in this system is accessible to the general public consistent with the Idaho Public Records Act.
- The Remediation policy outlines when remediation should be initiated, the extent of remediation needed and how to select the appropriate remedy taking into consideration site specific risks to health and the environment, the cost of the remediation, the technological limitations and the need to maintain or recover beneficial uses of ground water and interconnected surface water.
- The Liability for Costs of Remediation policy further describes how costs for remediation should be apportioned between responsible parties and the general public. Allocation of costs should consider causes of the contamination, whether the contamination is from past or current practices and other appropriate factors.

### ***Ground Water Protection Approach***

Protection will be achieved most effectively by preventing contamination. Prevention efforts include educating the public and industries on general ground water quality, establishing public participation, providing technical assistance, developing effective Best Management Practices (BMPs), and categorizing each aquifer or portion of aquifer throughout the state. The categorization system establishes three different levels of protection for aquifers based on existing ground water quality, vulnerability to contamination, and existing and projected future beneficial uses for that aquifer.

Voluntary approaches and education will be used whenever possible to maintain the existing high quality of ground water. If prevention approaches and education prove to be ineffective or inappropriate, regulatory approaches will be implemented. With this focus, the Ground Water Quality Standards will be developed and applied using a two level approach. The first level calls for prevention efforts when an increasing

trend in any biological, radiological or chemical constituent is observed. The second level calls for enforcement if a constituent exceeds the numerical standard.

Many known sources of contamination are already managed through existing programs. One part of a comprehensive protection approach for ground water is to evaluate existing programs with respect to ground water protection. With this in mind, sources of contamination will be prioritized based on relative risk to ground water. Using this prioritized list, existing programs will be modified and new prevention programs developed as needed to prevent contamination from sources that pose a significant risk to ground water quality.

Remediation should be conducted when contamination of ground water produces a significant potential for the impairment of an existing or projected future beneficial use and where remediation is feasible and appropriate. Remediation decisions involve determining when remediation is needed, determining the extent of remediation needed, and selecting an appropriate remedy based on health risks, cost, technological limitations and the need to maintain or recover beneficial uses of ground water and interconnected surface water.

Agricultural and mining practices present special concerns for protection of ground water because those activities may impact ground water through conventional operating procedures. This concern fostered the development of policies specifically tailored to the unique practices found in these industries while maintaining the highest level of protection for ground water.

### ***Ground Water Quality Monitoring***

Ground water quality monitoring is an essential implementation and evaluation tool for prevention, regulatory and remediation activities. A comprehensive monitoring program is a fundamental way to verify that the concepts embodied in the plan are actually working. Early detection of ground water quality problems can prevent development of more extensive problems and allows agencies and the public to mitigate potential health threats and adverse effects on beneficial uses of ground water.

Three types of monitoring are required to establish a complete picture of ground water quality. The three types are: statewide ambient monitoring, regional monitoring, and local monitoring. Each type differs in purpose, scale, and duration.

The monitoring program is intended to complement other long term monitoring programs to avoid duplication of effort and to increase the data base on ground water quality. One example of existing long term monitoring is the Idaho National Engineering Laboratory (INEL) monitoring program, which began in 1949 and has become increasingly more comprehensive over the years. Recently IDHW-DEQ has established an oversight program to review and supplement monitoring at INEL.

Other examples of long term monitoring programs are the Public Drinking Water program and the Underground Injection Control (UIC) program, which monitors the water quality in injection wells.

An environmental data management system will house the results from different monitoring efforts. Results of monitoring are to be made available to local, state and federal agencies, and to the public on request.

## **INTRODUCTION**

Idaho ranks in the top five states in the United States for volume of ground water used. Idahoans use nearly 6,500 million gallons per day (Yee and Souza, 1984). In terms of volume, irrigation accounts for the majority of ground water used. Public and private drinking water systems account for 3% of the total ground water used, or approximately 195 million gallons of ground water per day. Ninety percent of Idaho's drinking water comes from its aquifers.

Historically, ground water has been viewed as an inexhaustible resource; a resource that is inexpensive, readily available, and invulnerable to the detrimental effects of activities occurring on the land surface. This perception led to wide use of this natural resource.

Recently, incidents of well contamination, aquifer contamination, leaking landfills and leaking underground storage tanks are creating a growing awareness among Idaho citizens of how vulnerable our ground water really is. The discovery of ground water contamination emphasizes the sensitive relationship between ground water quality and all types of land use activities.

Ground water is now perceived as a limited resource that is relatively easy to contaminate, and once contaminated, very difficult to clean up. Past and present efforts nationwide also have shown that tremendous costs can be incurred when cleaning up ground water contamination, accentuating the need to prioritize prevention of contamination over cleanup. These concerns have led policy-makers and citizens to coordinate their efforts to protect ground water as one of Idaho's most valuable resources.

### ***The 1989 Statutory Mandate***

The Idaho Legislature enacted the Ground Water Quality Protection Act of 1989. This act amends Idaho Code, Section 39-102 and adds new sections of Idaho Code, Sections 39-120 through 39-127. Also included in this act is an amendment to Idaho Code, Section 67-6537. The act calls for creation of a Ground Water Quality Council that is responsible for developing a Ground Water Quality Plan with a Ground Water Quality Monitoring Program for adoption by the legislature.

The Ground Water Quality Plan is a planning document, not a set of regulations. The act specifies that the plan should:

- “Describe the state's overall approach to protecting its ground water.
- Take into account existing and projected future beneficial uses and existing ground water quality.



- Identify existing authorities and programs to protect ground water quality.
- Propose legislative, administrative and economic mechanisms to protect ground water quality.
- Review and make recommendations on plans for development and administration of a comprehensive ground water monitoring network, including point of use, point of contamination and problem assessment monitoring sites across the state and assessment of ambient ground water quality utilizing, to the greatest extent possible, collection and coordination of existing data sources.
- Include programs to promote and assure public awareness of ground water protection.” (Idaho Code 39-120)

The act requires the IDHW-DEQ, the IDWR and the IDA to assist the Council in the development and administration of the ground water quality plan and the monitoring program. Additionally, the act stresses that all cities, counties, and state agencies of Idaho must incorporate the provisions of the Ground Water Quality Plan into the administration of their programs.

### ***Ground Water Quality Council***

The Ground Water Quality Council consists of seventeen voting members and five non-voting ex-officio members. Membership of the Ground Water Quality Council is outlined in the legislation and requires appointment of all Council members by the Governor. Council members represent a wide variety of industry, environmental, conservation and governmental groups which bring diverse expertise to the development of the protection plan.

To expedite formation of the plan, the Council chose to form three internal subcommittees to work on the major components of the plan. The three subcommittees are:

- The Protection Plan Subcommittee
- The Ground Water Monitoring Subcommittee
- The Agricultural Chemical Subcommittee

The Protection Plan Subcommittee formulated policies and strategies for management and implementation. The Ground Water Monitoring Subcommittee developed the Statewide Monitoring Program, the Regional and Local Monitoring Program and the Quality Assurance/Quality Control (QA/QC) Manual for uniformity in sampling and laboratory testing techniques. The Agricultural Chemical Subcommittee worked with the IDA and IDHW-DEQ to develop a plan to solve problems specific to urban and agricultural use of pesticides and fertilizers.

The act specifies that the Council will exist for up to two years following final approval of the Ground Water Quality Plan to observe the progress made in implementing the provisions of the plan. The Ground Water Quality Council will then disband if not re-authorized by the legislature.

## **GOALS AND REQUIREMENTS OF THE GROUND WATER QUALITY PLAN**

The purpose of the Ground Water Quality Plan is to protect ground water quality for use by the public. The plan also provides guidance and direction to state agencies, local governments, and citizens in preventing ground water contamination. This purpose is to be accomplished by fulfilling the following goals contained in the statute:

- “Maintain the existing high quality of the state’s ground water and satisfy existing and projected future beneficial uses including drinking water, agricultural, industrial and aquacultural water supplies. All ground water shall be protected as a valuable public resource against unreasonable contamination or deterioration. The quality of degraded ground water shall be restored where feasible and appropriate to support identified beneficial uses.” (Idaho Code 39-102)
- “Prevent contamination of ground water from point and nonpoint sources of contamination to the maximum extent practical.” (Idaho Code 39-102)
- Indicate that “the discovery of any contamination that poses a threat to existing or projected future beneficial uses of ground water shall require appropriate actions to prevent further contamination. These actions may consist of investigation and evaluation or enforcement actions if necessary to stop further contamination or clean up existing contamination as required under the Environmental Protection and Health Act.” (Idaho Code 39-102)
- “All persons in the state should conduct their activities so as to prevent the nonregulated releases of contaminants into ground water.” (Idaho Code 39-102)
- “Education of the citizens of the state is necessary to preserve and restore ground water quality.” (Idaho Code 39-102)
- “Make public the results of investigations concerning ground water quality subject to the restrictions contained in section 39-111, Idaho Code.” (Idaho Code 39-120)
- “Develop a ground water quality monitoring program concurrently with the development of a ground water quality plan.” (Idaho Code 39-120)
- “Establish a system or systems within state departments and political subdivisions of the state for collecting, evaluating and disseminating ground water quality data and information.” (Idaho Code 39-120)
- “Develop and maintain a natural resource geographic information system and comprehensive water resource data system. The system shall be accessible to the public.” (Idaho Code 39-120)

## **OVERVIEW OF IDAHO’S GROUND WATER**

Ground water is an integral part of the way of life in Idaho; it is used in many domestic, agricultural, and industrial applications in large volumes. Although ground water in Idaho is pervasive, it is a resource that is difficult to conceptualize in its natural state. Many people think of ground water existing as lakes or rivers occupying cavernous structures in the subsurface. Although ground water does exist this way (usually in limestone caves), more often ground water occupies small, usually microscopic, open spaces or pores formed between the grains that compromise soil and rock.

Units of soil and rock that are saturated with ground water are classified as either aquifers or aquitards. Aquifers are soil or rock units that have sufficient porosity and permeability to store and transmit ground water at rates fast enough to supply reasonable amounts of water to wells or springs. Aquitards are soil or rock units that do not supply reasonable amounts of ground water to wells or springs because of limited permeability.

Aquifers are recharged by infiltration of water in recharge areas. Sources of water for recharge include: precipitation, leakage from lakes, rivers and streams, and irrigation. Recharge zones commonly are areas of topographic relief such as mountains or hills. Precipitation is the main source of recharge in these areas.

As water infiltrates and accumulates in the aquifer, it begins to flow through the aquifer to an area of discharge. Discharge areas are generally topographic low points such as valleys. Aquifers discharge ground water naturally as springs and seeps, as evaporation and transpiration from plants, and as water seeping directly into gaining reaches of streams and rivers. Artificial discharge from an aquifer is produced by pumping ground water from a well.

Aquifers are classified as confined or unconfined. A confined aquifer is one that is overlain by an aquitard (Fig. 1). A confining aquitard acts both as a barrier to water seeping into the aquifer from the surface and a barrier to ground water leaking out of the aquifer.

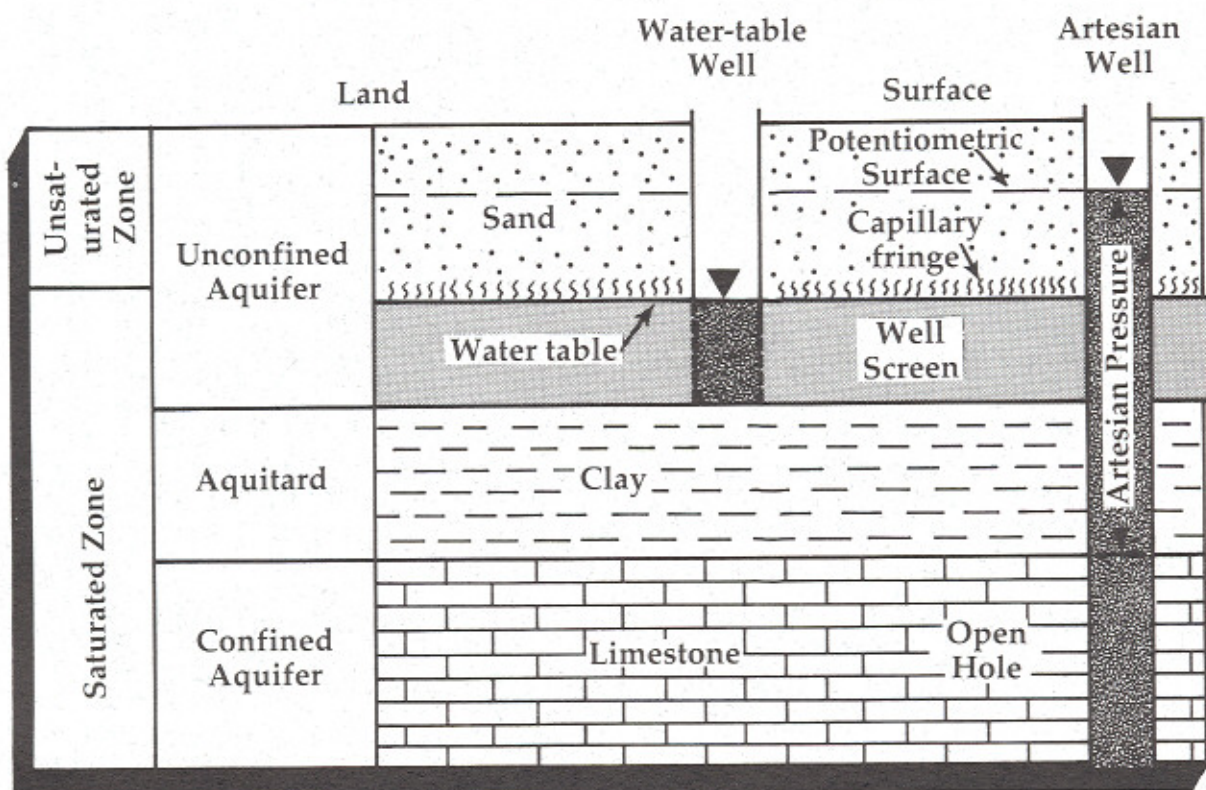


Figure 1. Diagram of a confined and an unconfined aquifer. (Modified from Health, 1989)



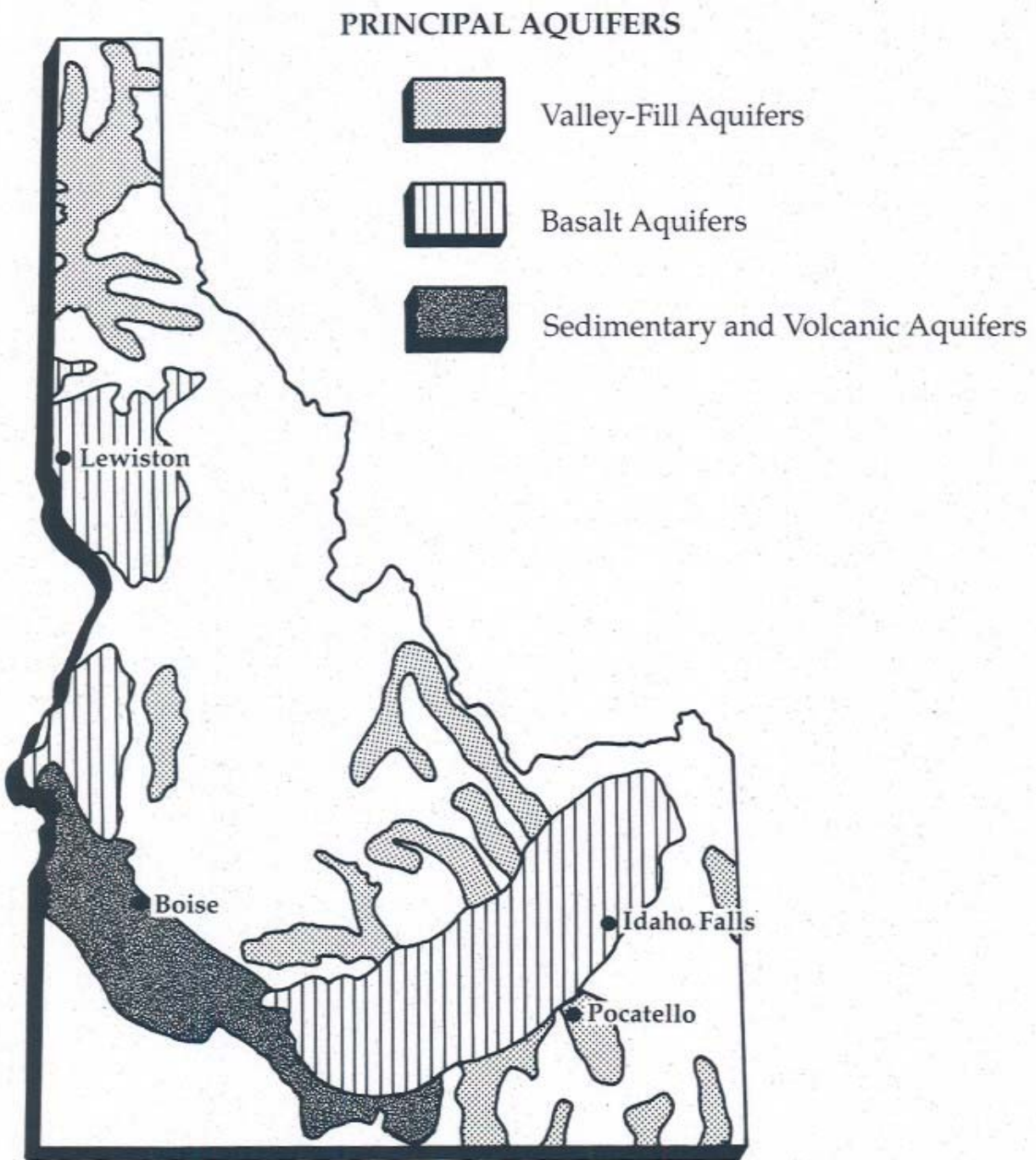


Figure 2. Generalized description and a real extent of major aquifers in Idaho.  
(Modified from Parlman, 1986)

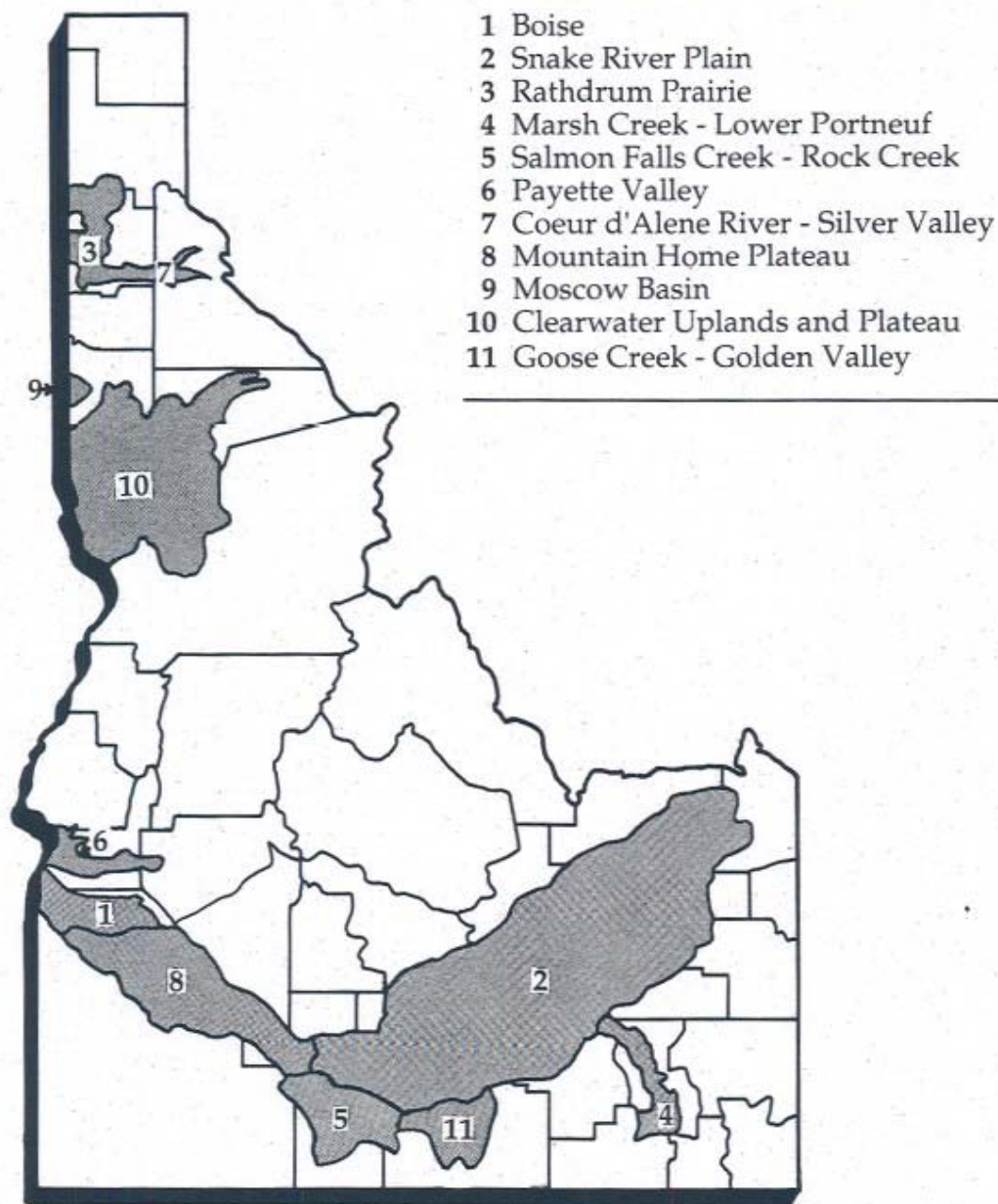


Figure 3. Locations of specific aquifers of interest in Idaho. (From IDHW, 1989)

Unconfined aquifers typically do not have confining layers between the water table and the land surface. These aquifers are referred to as water table aquifers because the top of the aquifer is not confined by an aquitard (Fig.1). In instances where the aquifer is overlain by an aquitard, the aquifer is considered unconfined if the standing water in a well drilled into the aquifer does not rise to a level higher than the contact of the aquifer and the overlying aquitard.

### ***Types of Aquifers in Idaho***

Three general types of aquifers have been defined in Idaho and each is characterized by distinctive geology. These principle types of aquifers are: valley fill aquifers, basalt aquifers, and sedimentary and volcanic aquifers (Graham and Cambell, 1981, Yee and Souza, 1984, Parlman, 1986). Aquifer location and type in the state are represented in Figure 2.

Valley fill aquifers consist of unconsolidated sediments filling the valleys between ridges of the mountainous portions of the state. Water yielding zones in valley fill aquifers are most commonly unconfined, i.e., there are no aquitards to limit downward flow of water. Recharge to ground water in valley fill aquifers is primarily from infiltration of precipitation and leakage from surface water sources. Principal valley fill aquifers are located in northern and southeastern Idaho, and in the central Idaho mountains (Fig. 2). The Rathdrum Prairie aquifer, located in northern Idaho near Coeur d'Alene, is one example of a valley fill aquifer (Fig. 3).

Basalt aquifers are characterized by numerous basalt flows and thin interbeds of sediments and/or pyroclastic volcanic rocks. Water yielding zones in basalt aquifers, which tend to be located in the interbeds between basalt flows, may be confined or unconfined. Major sources of recharge to basalt aquifers are: infiltration of precipitation; infiltration of irrigation water; and seepage from canals, streams, and rivers. The principal basalt aquifer in Idaho, the Snake River Plain Aquifer, underlies the eastern Snake River Plain and is one of the highest yielding aquifers in the state. Smaller basalt aquifers occur in the Moscow Basin and Lewiston Basin in the north, in the Soda Springs area in the southeast, and the Weiser River Basin in the southwest (Fig. 2 and 3).

Sedimentary and volcanic aquifers consist of unconsolidated sediments with basalt and rhyolitic rocks and interbedded shale and sandstone. Water yielding zones in these aquifers may be confined or unconfined. Major sources of recharge are infiltration of irrigation water and seepage from canals or rivers. Principal aquifers of this type are found in the western Snake River Plain. Other aquifers of this type are located in the southwestern portion of the state in the Boise Valley, the Mountain Home area, the Payette Valley area, and south of the Snake River (Figures 2 and 3).



## IDENTIFICATION OF CONTAMINATION SOURCES

Ground water is a principal source of water for industrial, public, and rural water uses in Idaho, constituting 35% of all water used in the state. Because so many Idaho citizens rely on ground water for their many needs, it is important that this resource be protected from contamination. There are numerous potential sources of ground water contamination. The Office of Technology Assessment's (OTA) classification of potential sources of ground water contamination is presented in Table 1.

The quality of ground water in Idaho's aquifers is influenced by both natural factors and by man's activities. Natural factors that affect ground water quality include: the chemistry of precipitation; the dissolution of organic and mineral substances from vegetation, soil, and rocks as the water contacts the land surface and percolates through earth materials; and the length of contact of the ground water with soil and rocks of the aquifer.

Man's activities cause changes in ground water quality either by withdrawing water from the ground water system or by allowing chemicals and contaminants to infiltrate into aquifers. Sources of manmade contamination are generally referred to as point and nonpoint.

### *Point Source Contamination*

A point source of ground water contamination is a source such as a surface spill, leaking underground tank, or landfill that has an identifiable point of release and zone of impact in the aquifer (IDHW-DEQ, 1989).

The potential for point source contamination in Idaho is high because major aquifers in the state are located beneath the areas of most intense land use. Most of Idaho's population resides over the Snake River Plain, Rathdrum Prairie, and Boise Valley aquifers. Contamination sources associated with population density such as leaking underground storage tanks and transportation accidents tend to be concentrated over these aquifers.

### *Nonpoint Source Contamination*

Nonpoint sources of ground water contamination are much harder to pinpoint. A nonpoint source of ground water contamination is diffuse, and intermittent and is usually individually significant with respect to the amount of contaminants generated (IDHW-DEQ, 1989). The cumulative effect of a high density of nonpoint sources results in ground water contamination.

Potential major nonpoint sources of contamination in Idaho include: septic tank drain fields, field application of agricultural chemicals, and urban runoff. There are potentially other nonpoint sources of contamination in Idaho, however, because of limited ground water monitoring in the state and the expense of conducting extensive large scale areal sampling programs, the impact of other potential sources is poorly known at this time.

**TABLE 1: POTENTIAL SOURCES OF GROUND WATER CONTAMINATION**

<p><b><i>CATEGORY I - Sources designed to discharge substances:</i></b></p> <p>Subsurface percolation (e.g., septic tanks and cesspools)</p> <p>Injection Wells</p> <ul style="list-style-type: none"> <li>Hazardous waste</li> <li>Non-hazardous waste (e.g., brine disposal and drainage)</li> </ul> <p>Non-waste (e.g., enhanced recovery, artificial recovery, solution mining and in-situ mining)</p> <p>Land Application</p> <ul style="list-style-type: none"> <li>Waste Water (e.g., spray irrigation)</li> <li>Wastewater byproducts (e.g., sludge)</li> <li>Hazardous waste</li> <li>Non-hazardous waste</li> </ul>	<p><b><i>CATEGORY III - Sources designed to retain substances during transport or transmission:</i></b></p> <p>Pipelines</p> <ul style="list-style-type: none"> <li>Hazardous waste</li> <li>Non-hazardous waste</li> <li>Non-waste</li> </ul> <p>Materials transport and transfer operations</p> <ul style="list-style-type: none"> <li>Hazardous waste</li> <li>Non-hazardous waste</li> <li>Non-waste</li> </ul>
<p><b><i>CATEGORY II - Sources designed to store, treat, and/or dispose of substances, or discharge through unplanned release:</i></b></p> <p>Landfills</p> <ul style="list-style-type: none"> <li>Industrial hazardous waste</li> <li>Municipal Sanitary</li> <li>Open dumps, including illegal dumping (waste)</li> <li>Residential (or local) disposal (waste)</li> </ul> <p>Surface Impoundments</p> <ul style="list-style-type: none"> <li>Hazardous waste</li> <li>Non-hazardous waste</li> </ul> <p>Waste tailings</p> <ul style="list-style-type: none"> <li>Waste piles</li> <li>Hazardous waste</li> <li>Non-hazardous waste</li> </ul> <p>Material stockpiles (non-waste)</p> <ul style="list-style-type: none"> <li>Graveyards</li> <li>Animal burial</li> <li>Aboveground storage tanks</li> <li>Hazardous waste</li> <li>Non-hazardous waste</li> <li>Non-waste</li> <li>Containers</li> <li>Hazardous Waste</li> <li>Non-hazardous waste</li> <li>Non-waste</li> <li>Open burning sites</li> <li>Detonation sites</li> <li>Radioactive disposal sites</li> </ul>	<p><b><i>CATEGORY IV - Sources discharging substances as a consequence of other planned activities:</i></b></p> <ul style="list-style-type: none"> <li>Irrigation practices (e.g., return flow)</li> <li>Pesticide applications</li> <li>Fertilizer applications</li> <li>Animal feeding operations</li> <li>De-icing salts applications</li> <li>Urban runoff</li> <li>Percolation of atmospheric pollutants</li> <li>Mining and mine drainage</li> <li>Surface related mining</li> <li>Underground mine-related</li> </ul>
	<p><b><i>CATEGORY V - Sources providing conduit or inducing discharge through altered flow patterns:</i></b></p> <ul style="list-style-type: none"> <li>Production wells</li> <li>Oil (and gas) wells</li> <li>Geothermal and heat recovery wells</li> <li>Water supply wells</li> <li>Other wells (non-waste)</li> <li>Monitoring wells</li> <li>Exploration wells</li> <li>Construction excavation</li> </ul>
	<p><b><i>CATEGORY VI – Naturally occurring sources whose discharge is created and/or exacerbated by human activity:</i></b></p> <ul style="list-style-type: none"> <li>Ground water - surface water interactions</li> <li>Natural leaching</li> <li>Salt-water intrusion/brackish water up-coming (or intrusion of other poor-quality natural water)</li> </ul>

(from Office of Technology Assessment, 1984)

### *Sources of Contamination in Idaho*

The threat to ground water from known and potential sources of contamination in Idaho may be determined on the basis of risk to human health and the environment. Sources of contamination may include feedlots and dairies, land application of wastewater, septic tank pumpage, radioactive substances, injection wells, geothermal wells, petroleum handling and storage and some types of mining. Both the eastern and the western Snake River Plains and the northern Idaho valleys have areas with the most intensive land use activities and the greatest potential for land or water-use effects on ground water quality.

Ground water contamination from land or water-use activities can be caused by excessive concentrations of one or more of the following constituents: dissolved solids; sulfate; chloride; fluoride; sodium; nitrogen compounds; phosphate compounds; trace metals including iron, manganese, or zinc; radiochemicals; detergents; pesticides; toxic metals such as cadmium or chromium; petroleum products; and hazardous organic chemicals including volatile organic compounds (VOCs), wood preservatives such as pentachlorophenol (Penta or PCP), and polychlorinated biphenyls (PCB's). Biological contaminants include bacteria, viruses, and parasites, most commonly giardia lamblia.

Ground water contamination problems are reviewed in an annual ground water report to the Legislature. Annual reports are available upon request from IDHW-DEQ.

# **GROUND WATER QUALITY POLICIES**

## **Preamble**

The twenty-two policies in this section are meant to be implemented cooperatively and concurrently to present a comprehensive framework for ground water quality management. The protection policies establish goals and criteria for protecting ground water quality. The goals of the plan are intended to assure the existing high quality of ground water and current and projected future beneficial uses will be maintained. The categories of aquifers protect ground water quality by recognizing that different aquifers need different levels of protection based on how the ground water is used and its vulnerability to contamination. The plan recommends establishing three categories of aquifers which will allow different levels of protection. Ground water quality standards are a combination of narrative and numerical values which set the maximum limits for constituents which can impact public health or the environment. The Ground Water Quality Plan is a planning document meant to provide direction to develop ground water quality regulations. Ground water quality standards will be developed as part of the ground water quality regulations and during the aquifer categorization process.

Prevention policies address various approaches to preclude ground water contamination. Ground water quality will be maintained through educational programs, increased prevention elements being added to existing programs, and development of other needed new programs. Agriculture and mining have unique needs to consider when deciding how to best prevent ground water contamination. Agriculture must be managed to protect the beneficial uses of the ground water below the crop root zone. Likewise, mining must be managed to protect beneficial uses of ground water beyond the site that minerals are being extracted. Both of these activities will be managed in a feedback loop approach. The feedback loop uses best management practices to achieve and maintain ground water quality.

Active public participation is encouraged through the development of new programs, promulgation of rules and regulations, issuance of state permits, and through use of advisory committees. Continuing opportunities for public participation will be provided as part of the coordinated management efforts for ground water quality.

Sampling conducted in the Ground Water Quality Monitoring Program indicates if the protection and prevention efforts are effectively working. Monitoring is conducted on three levels; statewide, regional, and local. Monitoring results indicate the presence or absence, and the actual amounts detected of biological, radiological and chemical constituents of concern. Monitoring data are analyzed to determine if degradation is occurring to establish ambient ground water quality and to evaluate the success of protection efforts.

Ground water contamination may occur when prevention programs are inadequate or fail altogether. The ground water contamination may necessitate remediation. Remediation is any action that will reduce ground water contamination or its effects and will be conducted based on specific criteria such as risks to human health and the environment. An important issue in ground water remediation is determining who is responsible for the costs of cleanup.

An effective ground water protection program requires that the public, which includes private citizens, businesses and all levels of government, collectively manages its activities to prevent ground water contamination.

With these issues to consider, the Ground Water Quality Council and coordinating state agencies determined that the basis of the protection plan should be general guidance for protection of ground water throughout the state. This guidance is provided through a comprehensive series of policy statements, each accompanied by an explanatory rationale and a strategy for implementation. All implementation items will be developed in a manner consistent with the provisions of the Ground Water Quality Plan. The policies are the foundation upon which future ground water protection efforts will be based.

## **I. PROTECTION**

### **I-A. Ground Water Quality Protection**

The policy of the state of Idaho is to maintain and protect the existing high quality of the state's ground water.

#### ***Rationale***

The policy of the state is to protect ground water against unreasonable contamination or deterioration in quality, and thereby maintain suitability of such water for existing and projected future beneficial uses. The goal of the Ground Water Protection Plan is to protect ground water to the level of its existing high quality and to prevent deterioration to a lower quality.

#### ***Implementation***

- Adopt the Ground Water Quality Plan and implement all provisions of the plan.
- The Ground Water Quality Plan is a dynamic document that should be reviewed and revised every 5 years to incorporate changes in technology and ground water quality issues.

### **I-B. Existing and Future Beneficial Uses**

The policy of the state of Idaho is that existing and projected beneficial uses of ground water shall be maintained and protected, and degradation that would impair existing and projected future beneficial uses of ground water and interconnected surface water shall not be allowed.

#### ***Rationale***

The policy of the state is to base protection of ground water quality on the beneficial uses of the resource. "Beneficial uses are the reasonable and appropriate uses of ground water for a purpose consistent with Idaho State laws and the best interest of the people" (IDHW, 1988, Idaho Water Quality Status Report and Nonpoint Source Assessment 1988). Beneficial uses include, but are not limited to drinking water, industrial, agricultural, mining and aquacultural water supplies.

Although maintaining beneficial uses is an important reason for ground water quality protection, allowing deterioration of ground water quality to the limits of any beneficial use is not the intent of this plan. Degradation of ground water quality below existing levels is to be viewed as a warning or indicator that surface or underground activities should be evaluated, and these activities may require modification to avoid further degradation.



It is important to also recognize the beneficial uses of interconnected surface water when evaluating protection of ground water. This policy is not intended to result in the application of surface water quality standards to ground water. The intent is to ensure that the quality of ground water that discharges to surface water does not impair identified beneficial uses of the surface water and that surface water infiltration does not impair beneficial uses of ground water.

### ***Implementation***

- Beneficial uses of ground water and interconnected surface water will be used as the basis for regulations, ground water quality standards, guidelines and management practices designed to protect or remediate ground water quality.
- Agencies that are responsible for activities that affect surface water quality should manage those activities to protect the beneficial uses of ground water.

### **I-C. Categorization of Ground Water**

The policy of the state of Idaho is to provide differential protection for the state's ground water resources. A ground water categorization system should be established for aquifers or portions of aquifers. The categorization system should be based on vulnerability of the ground water, existing and projected future beneficial uses of the ground water, existing quality of the ground water, and social and economic considerations.

### ***Rationale***

The level of protection afforded ground water should be consistent with its present water quality, its vulnerability to contamination, its existing and projected future beneficial uses, and social and economic considerations. Categorization of ground water will allow different levels of protection to recognize the unique characteristics of aquifers and portions of aquifers within the state. While there are three levels of protection for ground water, there is only one set of ground water quality standards for the three categories. The sensitive and special use categories allows adjustments to the ground water quality standards as determined on a case-by-case basis.

### ***Implementation***

Implementation of a differential protection system involves the following five steps:

1. IDHW-DEQ, in cooperation with other appropriate agencies, should develop regulations to establish categories and levels of protection for ground water. The regulations should include the criteria for each category, a process to recategorize aquifers or portions of aquifers, and general requirements for management of activities that impact aquifers in each category. The following three categories of protection should be established:

<b><i>Category</i></b>	<b><i>Level of Protection</i></b>
Sensitive	Maintain or improve existing ground water quality through the use of BMPs and best available methods. This category provides the highest level of ground water protection.
Drinking Water	Maintain or improve existing ground water quality through the use of BMPs and best practical methods to the maximum extent practical.
Special Use	Protect current identified and projected future beneficial uses.

Certain highly vulnerable areas within any of the above categories may require special no degradation management practices. Examples may include wellhead setback areas and special recharge areas.

2. IDHW-DEQ, with technical assistance from IDWR, IDA and other appropriate agencies, should propose initial categories for aquifers and portions of aquifers based on the criteria established in this policy and in the implementing regulations. Initially all aquifers with activities having the potential to impact ground water will be categorized. Categorization for areas which currently have no activities would be initiated when an activity with the potential to impact ground water is proposed over an uncategorized aquifer. Initial categories should be adopted by rule of the Board of Health and Welfare with full opportunity for public comment as provided under the Administrative Procedures Act. State agencies should not delay actions, or deny or delay the processing or approval of any permit for an activity based on the fact that the Board has not completed the initial categorization process.
3. Regulations for changing the category of an aquifer or part of an aquifer or for establishing the category of an uncategorized aquifer should address the following considerations:
  - The process should not be so lengthy that it is prohibitive. Time frames should be established in the regulations and conditions specified if time frames are not met.
  - The burden of proof for establishing the need for recategorizing an aquifer should fall to the petitioner.
  - A process should be established for screening petitions for recategorization to assure that they are complete, appropriate, and feasible. Approval will be based on criteria outlined in the policies or regulations.
  - The recategorization should be adopted by rule of the Board of Health and Welfare using conventional administrative procedures, including a public hearing.
4. Different management strategies will be necessary for each category of ground water. All aquifers should be managed to prevent any adverse impact on the ground water quality of adjacent aquifers. All management strategies should:
  - Be developed by appropriate federal, state and local government entities and affected parties. Aquifer management should be an interagency effort using existing programs to the maximum extent possible.

- Be prepared with public participation.
  - Be enforceable when appropriate.
5. Certain areas will be designated No Degradation Management Areas. These areas are highly vulnerable, small in size and must have special management to protect the beneficial uses of the ground water. Examples of No Degradation Management Areas include wellhead set back areas and recharge areas.
- IDHW-DEQ should develop regulations for establishing and managing activities in these No Degradation Management Areas to provide statewide consistency. The regulations should be flexible enough to encourage local implementation and innovation in ground water protection strategies.
  - The government entity establishing a No Degradation Management Area should be responsible for developing, through a local planning process, a management plan consistent with state regulations or guidelines.

#### **I-D. Ground Water Quality Standards**

The policy of the state of Idaho is to establish ground water quality standards for biological, radiological and chemical constituents.

##### ***Rationale***

Ground water quality regulations should reinforce the main purpose of the Ground Water Quality Plan which is to protect ground water from contamination. Ground water quality standards are needed to establish the minimum level of protection for all beneficial uses. While it is the intent of the Ground Water Quality Council that ground water quality standards be developed based on drinking water standards, it is not the intent to allow degradation of ground water to those standards. Therefore, prevention activities should be implemented when degradation of ground water quality is detected and deemed significant by the responsible state or local agencies. Agencies, in determining significance of degradation, should consider site specific hydrogeologic conditions, seasonal water quality variations, existing and projected future beneficial uses, and related public health issues. The ground water quality standards will respond to obvious man-made chemical contaminants which should never naturally be found in ground water.

##### ***Implementation***

- IDHW-DEQ, with assistance from the Ground Water Quality Council, should develop regulations establishing ground water quality standards for biological, radiological and chemical constituents to provide the minimum level of protection for beneficial uses. Activities that have the potential to impact ground water quality should be managed to prevent constituents from exceeding standards. Table 2 illustrates how ground water standards should be applied through prevention and enforcement approaches to all sources of contamination.

Some but not all sources of contamination currently are managed through programs that provide ground water protection. A list of sources of contamination is provided on page 19 . Ground water protection programs may either be regulatory (Table 2 Section 1), or non-regulatory, based on guidance, management strategies or other voluntary efforts (Table 2 Section 2). Some sources are regulated for safety and environmental protection or other reasons, but may not include specific provisions for ground water protection (Table 2 Section 3a). Finally for a few sources of contamination, no program either regulatory or non-regulatory exists. (Table 2 Section 3b).

- Prevention approaches should include education, technical assistance, development and modification of BMP's using the feedback loop approach, changes to operation and management plans, or other voluntary measures suited to the source and the contaminant involved.
- Ground water quality standards should be established to protect the ground water for drinking water use. Variances from ground water quality standards should be established on a case by case basis for Sensitive and Special Use aquifers or portions thereof when the aquifer is categorized or recategorized.
- The points at which compliance with ground water quality standards is required should be established in regulations specific to a source or category of sources of contamination.
- The ground water regulations should establish a mechanism for mandatory aquifer protection to manage a local source of contamination if voluntary efforts prove inappropriate or ineffective.

TABLE 2

Program	Prevention Approach When Ground Water Quality Is Not Changing or Is Improving	Prevention Approach When Chemical Elements Indicate Declining Ground Water Quality	Enforcement Approach When Standards Are Exceeded
<p>1. Existing regulatory programs with ground water protection. ..... Examples: UIC Cyanidation On-site sewage disposal Land applied wastewater</p>	<p>Prevention based on:</p> <ul style="list-style-type: none"> <li>- Permit conditions</li> <li>- Performance standards and</li> <li>- Operational standards as found in existing regulations</li> </ul>	<p>Existing regulations will be revised as needed to allow for agency action when increasing trends are identified.</p>	<p>Existing regulations will be revised as needed so enforcement and cleanup may be started when ground water quality standards are exceeded.</p>
<p>2. Existing non-regulatory programs with ground water protection. ..... Example: Fertilizer application (If Agricultural Pollution Abatement Plan adopted)</p>	<p>Prevention based on:</p> <ul style="list-style-type: none"> <li>- Voluntary BMPs</li> </ul>	<p>Modify management practices in response to increasing trends using the feedback loop approach.</p>	<p>Develop regulatory programs as needed, depending on effectiveness of BMPs and the feedback loop process.</p>
<p>3a. No ground water protection program—program regulated for other purposes.</p> <p>3b. No existing program ..... Examples: 3a. CAFO's Underground mining 3b. Urban runoff</p>	<p>Prevention based on:</p> <ul style="list-style-type: none"> <li>- Voluntary efforts</li> </ul>	<p>Source wide concern — develop regulatory or non-regulatory programs as needed.</p> <p>.....</p> <p>Local concern— use notification, education and technical assistance to improve the practice.</p>	<p>Source wide concern — develop regulatory or non-regulatory programs as needed.</p> <p>.....</p> <p>Local concern—first notify, educate and use technical assistance; if that fails develop mandatory aquifer protection program.</p>

## **II. PREVENTION**

### **II-A. Prevention of Ground Water Contamination**

The policy of the state of Idaho is to prevent contamination of ground water from all regulated and nonregulated sources of contamination to the maximum extent practical.

#### ***Rationale***

Prevention of contamination is generally much less costly than cleanup. Often, complete cleanup is impossible and the ground water may be impaired on a long term basis. Therefore, it is in the best interest of the state to prevent discharges of contaminants that could adversely impact the existing quality and the existing and projected future beneficial uses of ground water.

#### ***Implementation***

- IDHW-DEQ, in cooperation with the appropriate agencies, should prioritize sources of contamination based on the risk to ground water. Using this prioritized list, the agencies should evaluate the effectiveness of existing programs in preventing ground water contamination. The appropriate agencies should modify existing programs and develop new prevention programs as needed to prevent contamination from sources that pose a significant risk to ground water quality. A summary of ground water programs and authorities, prepared by IDHW-DEQ with assistance from IDA and IDWR, at the direction of the council, is available as a supplement to this document.
- IDHW-DEQ, in cooperation with other appropriate agencies, should develop a statewide Wellhead Protection Program which satisfies federal requirements and is consistent with the categorization system policy and implementation statements and other prevention policies in the Ground Water Quality Plan.
- The appropriate agencies should develop educational and voluntary programs to discourage the release of unregulated contaminants to ground water to reduce or eliminate contamination from these sources.
- When monitoring data indicate a currently unregulated source of contamination is causing significant impacts on ground water quality, the appropriate agency should establish a program to prevent that contamination.
- Voluntary prevention programs that stress education and technical assistance are preferred. Regulatory programs should be developed when voluntary programs are not successful in preventing ground water contamination or fail to meet the existing ground water quality or do not meet the ground water quality goals or when the threat to ground water quality and beneficial uses is significant.
- Managing agencies should evaluate and amend existing prevention programs to assure their ability to define and implement BMPs, best practical methods, best available methods, and no degradation management practices.

- Any new protection programs should be developed to provide the managing agency with the authority necessary to develop and implement BMPs, best practical methods, best available methods, and no degradation management practices.

## **II-B. Agricultural Chemical and Nutrient Management**

The policy of the state of Idaho is that agricultural activities utilizing agricultural chemicals or nutrients applied to the land for the purpose of agricultural crop production will be managed so that these potential contaminants will not impair existing or projected or future beneficial uses of ground water below the crop root zone.

### ***Rationale***

Ground water quality protection from agricultural chemicals and nutrients requires management of these chemicals to maximize retention within the crop root zone. Agricultural chemicals and nutrient constituents found in intermittently saturated soils within the crop root zone will not be considered ground water contaminants. Proper management of these chemicals is also necessary to prevent contamination of the underlying ground water and to assure the continued availability of nutrients and registered chemicals which are needed to benefit agricultural production.

Implementation of voluntary BMPs is expected to be the primary and most effective method of protecting ground water beneath crop root zones. If it is determined that voluntary involvement is not adequate, then a mandatory approach would be warranted.

### ***Implementation***

- The appropriate state and federal agencies with assistance from local soil conservation districts should develop application management guidelines, BMPs, and regulations for agricultural chemicals and nutrients. These processes will be developed in the following sequential order:
  1. Voluntary BMPs will be the primary method of protecting ground water below the crop root zone.
  2. The agricultural feedback loop is the method of choice to allow the development, implementation, evaluation and improvement of BMPs. The voluntary BMPs should be developed and implemented by the appropriate agencies on a site specific basis with consideration for soil and crop characteristics and needs.
  3. Based on the potential for a contaminant and suspected cause, a specific time period will be set to determine effectiveness of BMPs in maintaining and improving ground water quality.

4. Effectiveness determination will be made by appropriate federal, state and local agencies including but not limited to IDA, SCS, SCC, SCD, CES, and IDHW-DEQ.
  5. If the ground water quality trend is not improving, then mandatory participation in applying voluntary BMPs is required.
  6. If the ground water quality trend is still not improving, BMPs with more stringent protection must be applied.
  7. If there is still no improvement in the ground water quality trend, regulatory programs will be required.
  8. Regulatory actions may be needed instead of BMPs as determined by a committee of appropriate agencies, including but not limited to IDA, SCS, SCC, SCD, CES, and IDHW-DEQ.
  9. Regulatory programs will also be applied when required by law.
- Appropriate local and state agencies should develop an information and education program to facilitate the voluntary implementation of BMPs.
  - Other plans which deal with ground water protection, such as the Agricultural Pollution Abatement Plan and the State Pesticide Management Plan, are recognized as necessary implementation mechanisms for ground water protection and are to be developed or modified as necessary to be fully consistent with the Ground Water Quality Plan.
  - All local, state and federal agencies using agricultural chemicals and nutrients should evaluate their existing management practices for consistency with the Ground Water Quality Plan.
  - Preliminary recommendations for changes in agricultural programs are further detailed in the Agricultural Chemical Source Matrix Table found in Appendix B.
  - IDA in cooperation with other state and federal agencies and the Agricultural Chemical Subcommittee will continue to develop the Agricultural Ground Water Quality Protection Program for adoption by the Ground Water Quality Council. The plan shall describe the process for implementing the recommended protective strategies for potential agricultural chemical ground water contamination sources and shall describe the interrelationship of the Agricultural Pollution Abatement Plan and the State Pesticide Management Plan with the Agricultural Ground Water Quality Protection Program.
  - An interdisciplinary team of technically qualified individuals will be formed to conduct an evaluation of existing state and local ground water quality programs. The evaluation will focus on the effectiveness of these programs in protecting ground water from potential contamination from agricultural chemicals. The team will present their findings to the Agricultural Chemical Subcommittee for incorporation with the Agricultural Ground Water Quality Protection Program.

Two examples of the work included in the Agricultural Ground Water Quality Program are the Agricultural Chemical Source Matrix and a schematic diagram of the BMP Feedback Loop representing the flow of voluntary and mandatory alternatives for agricultural contaminants. These two examples can be found in Appendix B.



## **II-C. Mining**

The policy of the state of Idaho is to protect ground water and allow for the extraction of minerals above and within ground water.

### ***Rationale***

Mining activities which could impact ground water include drilling, excavation, extraction, processing, overburden placement, waste disposal, and reclamation. Mining is unique among land use activities which impact ground water. While other activities usually occur on the land surface, mining can actually occur directly in ground water.

Mining, by its very nature, may use ground water and impact ground water quality in a localized area. The localized contamination may result in some ground water being unavailable for other beneficial uses at that specific site. Ground water and minerals are both vital to our lives. It is the intent of this Ground Water Quality Plan to strike a balance between these two resources.

### ***Implementation***

- The Department of Lands(IDL) and IDHW-DEQ, with assistance from IDWR and other appropriate agencies should develop a management strategy to protect ground water quality during all phases of mining operations. Management strategies should be developed for each type of mining operation such as surface, underground, placer, or dredge mining.
- Appropriate state agencies should develop an information and education program to facilitate the voluntary implementation of BMPs for mining activities.
- A feedback loop approach should be used to protect ground water quality while allowing mining activities to continue. The feedback loop should guide development, implementation, evaluation and improvement of BMPs for ground water protection. BMPs should be developed and implemented on a site specific basis with consideration for the hydrology, geology, and other characteristics and needs of the site.
- IDL and the Mining Advisory Committee, in cooperation with IDHW-DEQ, should develop BMPs for the protection of ground water quality impacted by mining activities. IDHW-DEQ should be the lead agency for evaluating BMP effectiveness in the feedback loop approach. The voluntary feedback loop for mining goes into the mandatory loop when ground water quality standards are exceeded.
- State regulations and laws governing mining activities should be reviewed and modified to incorporate appropriate provisions of the Ground Water Quality Plan. Ground water quality protection programs for those mining activities not addressed by state or federal regulations should be developed in accordance with policy II-A of this plan.

### **III. PUBLIC EDUCATION**

#### **III-A. Public Education on Ground Water Quality**

The policy of the state of Idaho is to provide educational programs on ground water protection, prevention of ground water contamination, and ground water restoration.

##### ***Rationale***

To maximize ground water protection at the most efficient and effective cost, the public should be informed about the reasons for preventing contamination, activities that may contaminate ground water, and ways to prevent contamination. An informed public is more likely to prevent contamination voluntarily and without the need for regulatory programs.

##### ***Implementation***

- The state should establish programs to provide educational opportunities to the general public. Educational programs should cover the nature and characteristics of ground water; ground water and other resource values; tradeoffs between resource protection, economic development, and social needs; existing ground water quality; activities that may contaminate ground water; ways to prevent contamination and ground water restoration.
- Appropriate agencies should establish programs to educate specific industries on existing ground water quality, how their activities may impact ground water quality, methods to prevent ground water contamination and ground water restoration.
- Development and delivery of educational programs should use the resources of public and private entities whenever practical.
- The public should have access to ground water quality information through the annual statewide monitoring report and the annual contamination report to the legislature. IDHW-DEQ should initiate a ground water monitoring publication series for reporting results of regional and local monitoring.
- IDHW-DEQ, in coordination with other state and federal agencies, should establish a ground water quality information clearinghouse for evaluation, collection and dissemination of information.
- The university system should work with the State Department of Education and other appropriate public and private agencies to develop and deliver ground water quality programs through public and private schools.
- Education is also included as part of the implementation of policies II-A, II-B, III-A, V-A and V-B.

### **III-B. Ground Water Quality Research**

The policy of the state of Idaho is that applied research and development programs be conducted to protect ground water quality.

#### ***Rationale***

Research is needed in many areas including, but not limited to, the development of BMPs, remediation technologies and other procedures to prevent contamination of the state's ground water and to better understand the existing quality of ground water within Idaho.

#### ***Implementation***

- The universities within Idaho should maintain a lead in conducting research on ground water quality issues such as BMPs and remediation technologies.
- This research should be of an applied nature and designed to better understand the factors affecting the quality of the state's ground water resources, methods to prevent deterioration of the ground water and remediation technology.
- The research should involve the appropriate local, state and federal agencies, and private corporations.
- The universities should consult with agencies, industries and the public to determine high priorities in ground water research needs.

## **IV. GOVERNMENT INTERACTION/PUBLIC PARTICIPATION**

### **IV-A. Public Participation in Ground Water Activities**

The policy of the state of Idaho is to provide information to encourage public participation in applicable activities related to ground water quality protection.

#### ***Rationale***

Public participation is essential to assure involvement and acceptance of ground water quality protection and remediation activities. Active public participation requires an informed audience that can be involved in the decision making process. Ongoing public feedback is a key component in evaluation of program effectiveness.

#### ***Implementation***

- State and local agencies should inform the public and encourage public input during development of new regulatory and nonregulatory ground water quality programs.
- State and local agencies will respond to public requests for information associated with ground water related activities in accordance with the Idaho Public Records Act.
- Public participation should be encouraged during promulgation of rules and regulations consistent with the requirements of the Administrative Procedures Act, as found in section 60-109, Idaho Code. This establishes the guidelines for public notice and public hearings.
- Appropriate agencies should encourage public participation in agency decisions through appointment of advisory committees to assist in program development and implementation.
- Appropriate agencies should use a public participation process to prepare planning documents and ground water quality management strategies to provide the opportunity for public input. Public input may consist of verbal and written comment periods before approval of new programs or issuance of state permits, and informational meetings on other agency activities when there is sufficient public interest.

### **IV-B. Local/State Government Interaction**

The policy of the state of Idaho is that all cities, counties and other political subdivisions of the state shall integrate the Ground Water Quality Plan in their existing programs and planning activities, and are also authorized and encouraged to implement ground water quality protection policies within their respective jurisdictions.

### ***Rationale***

Many land uses that pose a potential threat to ground water quality are managed at the local level. Local government can most efficiently administer and implement some provisions of the Ground Water Quality Plan, particularly when implementation can be incorporated into existing programs.

### ***Implementation***

- IDHW-DEQ, in cooperation with appropriate representatives of state and local government, should identify ground water programs that are most efficiently administered by local government and develop mechanisms for local implementation of those programs.
- IDHW-DEQ, in cooperation with appropriate state agencies, should develop guidance for programs implemented by local governments to assure statewide consistency.
- Training and technical assistance should be provided by appropriate state agencies to local governments to assist them with program implementation.
- Mechanisms or methods should be made available to provide for local funding of the Ground Water Quality Plan.
- The comprehensive land use planning act, Section 67-6501 through 67-6537, Idaho Code, provides the framework for existing local planning activities that should continue to be used throughout the state. The comprehensive land use planning act requires consideration of each proposed amendment, repeal or adoption of the comprehensive plan and the possible effects on ground water quality in the area.

## **IV-C. Local/State Consistency**

The policy of the state of Idaho is that local governments should assist in the implementation of the Ground Water Quality Plan under the authorities given them in the Idaho State Constitution and the Idaho Code. Local government may provide ground water protection through mechanisms appropriate to their authority to address local concerns and needs. Such mechanisms should be consistent with state laws and the Ground Water Quality Plan. Further, such local mechanisms should not impose duplicate permitting requirements on the public.

### ***Rationale***

Local government entities are members of the statewide partnership to manage ground water quality protection. Each partner should perform its respective role consistent with the overall Ground Water Quality Plan. Local government should assist in implementation of the plan under the existing authorities granted them in the Idaho State Constitution and Idaho Code.

It is the intent of this plan to prohibit local ground water protection measures which duplicate state and federal licensing and permitting requirements in order that ground water quality issues may be dealt with in the most efficient and consistent possible manner.

### ***Implementation***

- The Board of Health and Welfare has statutory authority to adopt numeric and narrative standards for ground water contaminants [Idaho Code 39-120(4)]. When the Board has adopted a ground water quality standard for a contaminant, local governments may not adopt or maintain a more stringent ground water quality standard. Any ground water quality standard adopted by a local government shall be based on findings of fact confirmed by IDHW-DEQ.
- Ground water policies and implementation strategies in this plan provide guidance for local government management efforts and should be applied uniformly statewide.
- In the interest of statewide consistency, local governments may provide only supplementary mechanisms for ground water quality measures which are necessary due to local conditions, to protect the health, safety, and well-being of the constituents they serve.
- Local governments may implement permitting and licensing requirements which do not duplicate state or federal requirements.

### **IV-D. Federal Consistency**

The policy of the state of Idaho is that the ground water underlying all federally owned lands be provided with the same level of protection from contamination as other ground water in the state.

### ***Rationale***

It is important that all ground water of the state be provided with protection from contamination. Protection of ground water should supersede any property ownership boundaries established by man. This policy confirms the Federal Water Pollution Control Act (formerly known as the Clean Water Act), as amended, (33 U.S.C., 1323) which requires the Federal Government to meet state, interstate and local substantive as well as procedural requirements respecting control and abatement of pollution in the same manner, and to the same extent, as any non-governmental entity. In addition, Executive Order 12372 (September 17, 1983) directs the Federal government to make efforts to accommodate and foster inter-governmental partnerships by relying on state processes, to the extent feasible, for state coordination and review of proposed federal financial assistance and development projects for their effect on water quality.

### ***Implementation***

- Federal agencies should comply with the provisions of the Ground Water Quality Plan, any ground water quality standards that come from the Ground Water Quality Protection Act of 1989 and any ground water protection programs that implement the plan.
- Federal land use management plans should incorporate and implement all relevant and applicable state and local ground water protection provisions.

### **IV-E. Interstate/Interprovincial/Tribal Agreements**

The policy of the state of Idaho is that when aquifers cross jurisdictional boundaries, the State of Idaho should participate in interstate, interprovincial or tribal agreements on ground water quality protection that address monitoring, prevention, and remediation issues.

### ***Rationale***

Aquifers that cross jurisdictional boundaries pose a special management problem. Activities may significantly impact ground water quality throughout the aquifer. It is in the state's interest to develop a joint plan for managing such aquifers to assure that protection goals and implementation strategies are compatible.

### ***Implementation***

- The state of Idaho should pursue development of interstate and interprovincial agreements between Idaho and states or provinces sharing a common aquifer. The agreement should address the minimum level of protection agreed to by both parties and outline remediation policies acceptable to both states or provinces. Appropriate state and local government agencies should participate in developing the agreement.
- The state of Idaho should pursue development of similar agreements between the State of Idaho and Indian tribal authorities for ground water quality protection where aquifers cross reservation boundaries.
- Interstate, interprovincial and tribal agreements should be evaluated and updated periodically to assure their effectiveness.

### **IV-F. Agency Roles in Ground Water Programs**

The policy of the state of Idaho is that roles of agencies involved in ground water programs be clearly defined to eliminate duplication of effort.

### ***Rationale***

It is important that agency roles be clearly defined for efficient implementation of the plan. The complexity of issues in the plan plus the number of agencies and entities involved in implementation could lead to misunderstanding of the scope and duties of each agency, resulting in duplication of effort. The agency roles have already been generally defined by statutory language, specifically in Idaho Code 39-102 through 39-127; by Gubernatorial Executive Order; and by existing federal program delegation. Federal agencies, local government agencies, and political subdivisions should coordinate their efforts during implementation of the plan.

### ***Implementation***

- IDHW-DEQ, IDWR, IDA and other appropriate agencies should jointly develop a Memorandum of Understanding (MOU) to clearly define agency roles, enhance cooperative efforts and avoid duplication of efforts whenever possible. The MOU should be consistent with related statutory language, existing federal program delegation and Governor delegation of lead agency. One example of this is found in the statutory language which states:

“...IDHW-DEQ is designated as the primary agency to coordinate and administer ground water quality protection programs for the state. Recognizing that IDWR has the responsibility to maintain the natural resource geographic information system for the state and is the collector of baseline data for the state’s water resources, that IDHW-DEQ has the responsibility for collecting and monitoring data for water quality management purposes and that IDA is responsible for regulating the use of pesticides and fertilizers and for licensing applicators...” (Idaho Code, 39-120)

This provides IDWR with the responsibility for developing and implementing the statewide monitoring program establishes IDHW-DEQ with responsibility for regional and local monitoring which includes water quality monitoring used in evaluation of BMP effectiveness.

- Roles of other appropriate entities, such as Soil Conservation Districts, city and county governments and other political subdivisions of the state should also be clearly defined by MOU, through delegation of authority, contracts, or any other approved method.

## **IV-G. State/Local/Federal Government Coordination**

The policy of the state of Idaho is to coordinate state, local, and federal activities to protect the quality of ground water resources of the State.

### ***Rationale***

State, local, and federal government entities are partners in the management of ground water quality protection activities. Each partner should perform its respective role consistent with all laws, regulations, and policies.



This policy recognizes that each level of government has differing roles. Coordinated implementation of ground water quality programs by state, local and federal government entities is expected to provide efficient and consistent ground water protection.

### ***Implementation***

- The State has the primary responsibility for management and protection of the quality of Idaho's ground water. The state will be responsible for characterizing ground water, assessing contaminant sources, prioritizing risks, establishing ground water quality standards, and coordinating and implementing protection and remediation programs.
- The State will evaluate the feasibility of obtaining and maintaining primary responsibility for each federally mandated program which may be delegated to the state.
- State and local governments may request federal resources and assistance to carry out their ground water protection responsibilities. Requests for financial assistance will reflect coordination of efforts and demonstrate consistency with the Ground Water Quality Plan.

## **V. GROUND WATER QUALITY MONITORING/ DATA INFORMATION SYSTEM**

### **V-A. Statewide Ground Water Quality Monitoring Network**

The policy of the state of Idaho is to implement and maintain an ongoing Statewide Ground Water Quality Monitoring Network.

#### ***Rationale***

The purpose of the statewide ground water quality monitoring network is to characterize and identify trends in water quality of major aquifers. This will be accomplished by establishing a comprehensive network of ground water sampling sites. These sites will be sampled in a systematic and repeatable way to maximize scope and minimize overlap with other monitoring programs. The network will be part of a warning system for existing or developing water quality problems. It is not the objective of the statewide program to define or quantify regional or local problems. When potential problems or trends are identified, the IDWR will notify the IDHW-DEQ and the IDA for follow up sampling to identify the source and extent of the contamination.

#### ***Implementation***

- The statewide ambient water quality monitoring network, to be administered by IDWR, should be designed specifically to not duplicate or replace any ongoing monitoring program, but to coordinate with other state and federal programs to the maximum extent practical.
- IDWR's statewide monitoring program should develop an annual plan within the guidelines established in the Ground Water Quality Plan. The plan should be reviewed by IDHW-DEQ and IDA. The plan should specify sampling objectives, probable site locations, quality assurance and quality control procedures, constituents to be evaluated, and estimated costs.
- Reports summarizing the activity and the results of the previous year's monitoring should be produced annually. A complete summary and interpretive report should be produced every five years.
- Procedures for notifying well owners and agencies when contaminants are detected must be established.
- The monitoring network should be expanded to include as many sites as possible. Sites may not be visited every year, but rotated in and out of the annual sampling as funding allows to maximize areal coverage and sampling sites.
- IDWR should provide educational products, such as newsletters and brochures, to inform and educate the public on the operation and sampling results of the Statewide Ambient Monitoring Network.

## **V-B. Regional and Local Ground Water Monitoring**

The policy of the state of Idaho is to implement and maintain a monitoring program designed to investigate ground water quality in regional and local areas where contamination may have occurred.

### ***Rationale***

The purpose of regional and local monitoring is to investigate ground water contamination that is known or suspected to exist in Idaho's ground water. Ground water contamination is identified by several mechanisms including the Statewide Monitoring Network, individual well owners and public water supply systems. Regional and local monitoring are needed: 1) to identify and delineate ground water contamination problems which are typically local or regional in scale and may not show up on the scale of the statewide monitoring effort, 2) to determine the areal extent of ground water contamination so that the beneficial uses of the resource can be protected, and 3) to provide information, direction or prioritization to state ground water quality programs. Contaminant sources cannot be adequately identified in most cases without conducting a monitoring study that considers the hydrogeologic complexity of the region or site of the ground water quality contamination. Regional and local monitoring is also useful in determining the effectiveness of remediation activities and the effectiveness of BMPs.

### ***Implementation***

- IDHW-DEQ, in cooperation with other appropriate agencies, will prioritize regional and local monitoring projects. Regional and local monitoring prioritization will be based on imminent risk to human health and the environment, on vulnerability of the ground water, and available funding.
- Regional and local monitoring will be administered by IDHW-DEQ in cooperation with other appropriate agencies within the guidelines outlined in the Ground Water Quality Monitoring Program section of this plan.
- IDHW-DEQ, in cooperation with appropriate agencies, will prepare a comprehensive annual Regional and Local Monitoring Plan. The plan will also be consistent with the overall management goals established by the Ground Water Quality Council.
- IDHW-DEQ will publish an annual report on the regional and local monitoring results and the implications for ground water protection.
- The regional and local monitoring program should be designed and implemented specifically so as not to duplicate or replace any existing monitoring, but to coordinate with other state and federal programs to the maximum extent practical.
- Procedures will be established for notifying well owners, affected public and appropriate agencies when contaminants are detected.
- IDHW-DEQ and other appropriate agencies should inform and educate the public on the results of the regional and local ground water quality monitoring program. Information should be included on overall ground water quality, the health and environmental effects of contaminants and the management approaches that can be used to solve ground water quality problems.

## **V-C. Artificial Recharge of Ground Water Aquifers**

The policy of the state of Idaho is that any program designed specifically for the artificial recharge of ground water, existing or proposed, be consistent with the policies and management objectives for water quality and quantity as defined in the Ground Water Quality Plan and the Idaho State Water Plan.

### ***Rationale***

Artificial recharge has the potential to significantly impact the quality of ground water. Artificial recharge of ground water has been and is going on today. A competition for Idaho water resources continues to escalate, artificial recharge of aquifers can provide an effective method of protecting existing and future beneficial uses.

### ***Implementation***

- IDHW-DEQ, in cooperation with other appropriate agencies, should develop guidelines, management practices and/or regulations to insure that artificial ground water recharge projects comply with the Ground Water Quality Plan.

## **V-D. Publicly Funded Ground Water Data Standards**

The policy of the state of Idaho is that all publicly funded ground water quality monitoring and data gathering activities be consistent with the overall Ground Water Quality Monitoring Plan.

### ***Rationale***

There are currently several ongoing publicly funded ground water monitoring activities designed and developed to satisfy a particular requirement. Each program is unique, but the information collected is important to ground water protection and should be compatible with the ground water information system. The purpose of this policy is to provide a framework for coordination and consistency in publicly funded ground water quality monitoring.

### ***Implementation***

- All public entities should work closely with IDWR to develop the procedures for submitting and certifying their data into an electronic format that can be easily incorporated into the state ground water quality information system.
- Where appropriate, publicly funded monitoring programs should follow the quality assurance and quality control guidelines established by the appropriate agencies.

## **V-E. Environmental Data Management System**

The policy of the state of Idaho is that an Environmental Data Management System be created to include data from past, present and future ground water quality monitoring. All data that reside in the publicly funded Environmental Management System will be accessible to the general public consistent with the requirements of the Idaho Public Records Act.

### ***Rationale***

This policy addresses legislative and Ground Water Quality Council concerns that the state incorporate and utilize data from prior, existing and future ground water quality data collection activities in a computerized system which will be made readily available to the public. The intent of the policy is to reduce or eliminate potential duplication of monitoring efforts and to increase the effective scope and depth of ground water quality monitoring programs. This policy establishes the need for data standards, procedures, and the means to store and access data in a consistent fashion.

### ***Implementation***

- State agencies, including but not limited to the IDHW-DEQ, IDWR and IDA, will establish and maintain an ongoing effort to inventory and coordinate with all ground water quality data collection programs, both public and private, within Idaho.
- A technical review committee will be established to review and classify all data to be entered into the Environmental Data Management System (EDMS). Data will be classified as to its level of confidence. Data limitations will also be identified.
- A data certification procedure will be established by which any entity wishing to have data loaded into the system assures that the data is free from any data entry errors. Since all original data entry will probably be done by an outside vendor or supplying organization, any data sets supplied to be loaded onto the EDMS must be certified by the same organization or vendor.
- The EDMS will be accessible to public and private organizations. Procedures will be established so that the management system may be accessed either on line or by means of dial up modem. Individuals or groups needing on line access will be required to do so at their own expense. A system use fee schedule will be established for transactions that require more than the supplied upload or download of data. Those without the ability to electronically access the management system will be able to receive the data they need on magnetic media upon written request.
- Design and implementation of the management system will take into account potential requests for specialized products or data processing services. These products and services may include maps, graphics, statistical and other data summary reports in either computer readable or hard copy form.

## VI. REMEDIATION OF CONTAMINATION

### VI-A. Remediation

The policy of the state of Idaho is where contamination resulting from human activities produces a significant potential for the impairment of an existing or projected future beneficial use of ground water, remediation should be conducted when feasible and appropriate. Decisions for when to initiate remediation, the extent of remediation needed, and the appropriate remedy should take into consideration site specific risks to health and the environment, the cost of the remediation, the technological limitations, and the need to maintain or recover beneficial uses of ground water and interconnected surface water.

#### *Rationale*

The best interest of the state is met when ground water contamination that impairs or threatens to impair beneficial uses is remediated whenever it is feasible and appropriate. Remediating contamination is an essential part of preserving the existing high quality of Idaho's ground water. In circumstances where contamination in soil has a significant potential to migrate to ground water, it is both protective of ground water and less costly to remediate the soil before the ground water is contaminated.

#### *Implementation*

- IDHW-DEQ, in cooperation with other appropriate agencies, should develop regulations for ground water remediation. In most cases remediation will not completely restore ground water to its precontaminated state, and in some situations ground water restoration may not be practicable at all. Decisions about remediation will be based on the criteria outlined in this policy. The regulations should include:
  - Conditions when remediation is needed. Soil remediation should be considered when there is significant potential for a migration of contaminants to ground water.
  - Direction for determining the remediation goal or extent of remediation required. State or federal health based standards should be used as the initial goal, followed by a second goal to provide consideration of criteria in this policy. This criteria allows the goal to be adjusted as appropriate.
  - A method for selecting an appropriate remedy. Remediation techniques can include controlling the source of contaminants, reducing the level of contaminants in the ground water by a variety of techniques, containing the contaminated ground water, treating the ground water immediately prior to use, and providing alternative water sources.
- The affected public should be notified when contamination which poses a significant threat to beneficial uses is identified and again when a remedy is selected.

- The Idaho Legislature should appropriate funds for investigation of known contamination as part of the IDHW-DEQ annual budget. These funds would be used to:
  - establish whether remediation may be needed,
  - identify responsible parties,
  - provide oversight of responsible party remediations.
  - Any ground water monitoring associated with this activity will be coordinated with the provisions of the Statewide and Regional and Local Monitoring Programs.
- A subcommittee of the Ground Water Quality Council should be established to identify funding alternatives and implementation strategies for remediation of contamination and recovery of costs when:
  - no responsible party can be identified,
  - a responsible party is partially or wholly unable to pay for remediation, or
  - a responsible party is unwilling to remediate and there is an imminent and substantial threat to human health or the environment.

Recommendations, draft legislation, or funding proposals should be presented to a standing or interim legislative committee by January 1993.
- IDHW-DEQ should provide adequate education and information to interested or impacted parties on a specific remedial action to allow informed public input on remedy selection.
- Agency decisions to seek public involvement in remedy selection should be based on the risk to public health and the environment, impacts to beneficial uses, size of the contamination problem and the level of public concern.
- Ground water quality which has been degraded by past mining practices should be restored where feasible and appropriate to support identified beneficial uses. Where restoration of such ground water is not feasible or appropriate to support identified beneficial uses, the appropriate level of government shall assure development of controls to prevent ground water use and to prevent contaminant mobility beyond an established zone surrounding the historic mining area.

## **VI-B. Liability for Costs of Remediation**

The policy of the state of Idaho is that costs for remediation be apportioned between responsible parties (to be defined by the Idaho Legislature) and the general public through a variety of funding mechanisms. The apportionment of costs should take into account the cause of the contamination, whether the person(s) causing the contamination are identifiable and able to conduct the remediation, and whether the contamination results from past or current practices and other appropriate factors.

## ***Rationale***

An important part of remediation is determining who is responsible for the conduct and costs incurred throughout cleanup. In an attempt to find a clear strategy for assigning liability for the cost of remediation, the Council has examined the federal program as well as the strategies used by other states. There are many problems associated with these programs which include a perception of unfairness in the allocation of responsibility and a concern that a significant portion of monies designated for cleanup is used for attorneys' and consultants' fees rather than cleanup itself. The sense of the Council is that remediation is more important than spending excessive amounts of money to determine who is liable for costs. Much of the ground water contamination existing today results from past practices that often were either commonly accepted practices of the day or even authorized under a permit system. Also, part of identifying responsible parties includes providing a defense for an innocent landowner in certain circumstances. In view of the complexity of the many contamination situations that can occur, it is virtually impossible to establish a single set of rules to determine who is liable for the costs of remediation.

## ***Implementation***

Responsible party should be defined through legislation that differentiates liability for contamination from prior practices and current practices. The following are offered for consideration for legislation:

1. For contamination that occurs after the adoption of legislation, the following should be held liable for the costs of remediation:
  - The person who caused the contamination.
  - The owner of the property from which the contamination originated.
2. For contamination from past practices, the following should be held liable for the costs of remediation:
  - The person who caused the contamination.
  - The owner of the property that is the source of the contamination at the time of the onset of contamination.
  - The present owner of the property with certain defenses allowed. These defenses include:
    - Those owners or operators who had no reason to suspect, after appropriate investigation, the existence of contamination;
    - Holders of security interests who are not involved in management of the property;
    - Those owners or operators that have contamination under their property and investigation shows that the contamination originated from a source not on the property;
    - Others to be defined consistent with federal and other state law.

An innocent landowner would have responsibility to allow remediation to be conducted on the property even in the absence of liability for costs.



3. Establish a state remediation fund to pay for remediation:
  - In emergency situations when a responsible party is unable or unwilling to conduct the remediation;
  - When a responsible party can not be identified.

A mechanism should be included for the state remediation fund to recover costs from uncooperative responsible parties who are liable for remediation.

If a public fund is not established for remediation, ground water will not be remediated at all, or the definition of who is liable for remediation must be very broad (strict, joint and several liability). The preference of the Council is to incorporate the concept of strict liability and avoid the inequities of joint and several liability.

4. Regulations should be developed to determine when state remediation funds may be used. The state remediation fund should be used only when no other mechanism for funding is feasible.
5. Establish a local funding option to pay for remediation activities below a certain threshold.
6. The Council discussed several approaches to fund remediation and was unable to reach a consensus on any approach. Among suggested sources or funding were taxes on specific products, per capita taxes, and insurance requirements. No one source of funding remediation should stand alone, but rather a combination of sources is suggested.
7. The definition of responsible party liability should not affect liability under other state or federal laws.

## **GROUND WATER QUALITY MONITORING PROGRAM**

### ***Introduction***

It is extremely important that monitoring be recognized as an integral part of the Ground Water Quality Plan. The early detection of ground water quality problems can prevent the development of more extensive problems. Early detection can aid in the mitigation of potential health threatening problems and can aid in the prevention of adverse impacts on other beneficial uses of the ground water. Monitoring is required to determine whether remediation activities are effective and whether alternate or additional remediation activities are required. A monitoring program is specified in the Ground Water Quality Protection Act of 1989 and is required to support policies I-A, I-B, I-C, V-A, V-B, II-B, II-C, and VI-A.

This section of the Ground Water Quality Plan describes the development of Idaho's ground water quality monitoring program and ground water quality database as mandated by the Ground Water Quality Protection Act of 1989. Current ground water monitoring is inadequate to provide an understanding of the existing quality of this vital resource. The Idaho ground water monitoring program is required and designed to address all of the following areas:

- “point of use” monitoring,
- “point of contamination” monitoring,
- “problem assessment monitoring sites across the state”,
- “the assessment of (statewide) ambient ground water quality” (Idaho Code 39-123).

The purpose of this section is to develop the framework for a three part monitoring program that will meet all of the requirements of the act. The framework is based in part on the recommendations expressed by Idaho ground water experts who attended a workshop conducted by the IDWR in April 1990 and on input from the Ground Water Quality Council. Workshop participants represented state and federal agencies, industry associations, consulting firms and universities. The Council consists of representatives from agriculture, mining, other industries, all levels of government, the general public, and environmental groups.

### ***Goals of Idaho's Ground Water Quality Monitoring Program***

The goals and objectives of monitoring need to be carefully defined as the first step in designing a program. The Ground Water Quality Protection Act states that the major goals of Idaho's monitoring program shall be to:

- Assess current ambient statewide ground water quality.
- Assess problem areas in ground water quality, including points of use and points of contamination.

Other reasonable and compatible goals include:

- Identify local variability so that ambient ground water quality data may be interpreted accurately.
- Collect, evaluate and disseminate ground water quality data.
- Identify trends in ground water quality over time.
- Identify any areas where use of ground water for drinking water supplies may pose a public health threat. Identify areas where other beneficial uses such as agriculture and industry uses are threatened or are not supported.
- Develop products including a geographic information system which will facilitate management decisions regarding the resource and will promote public awareness of ground water protection.

### ***Designing Idaho's Ground Water Quality Monitoring Program — A Three Part Approach***

An issue in designing Idaho's ground water quality monitoring program is data point resolution. Different densities of data are required to meet the goals of the monitoring program. For example, a closer spacing of data points is required to characterize a local or regional problem than is required to characterize the overall ground water quality of the state. In addition, a high-density statewide network, while providing excellent resolution, would be prohibitively expensive.

Historical data will be analyzed and future ground water quality monitoring programs will be designed to provide data of sufficient resolution and quality to meet the anticipated needs of users of the data to the maximum extent practical. Plans for the development and administration of a comprehensive ground water quality monitoring program shall use "to the greatest degree possible, collection and coordination of existing data sources" (Idaho Code 39-120).

A three-part monitoring approach is proposed to address the issue of data resolution. The three-parts are; (1) Statewide Monitoring, (2) Regional Monitoring, and (3) Local Monitoring. The three parts are designed to complement each other by allowing different degrees of resolution of data. Any one part taken by itself will fail to address the mandates of the statute as well as the needs of the data users.

The three parts differ in purpose, scale, and duration. Different questions can be answered by each part as shown in Table 3. Most importantly, knowledge gained from each part can and will be used to improve the other parts. This approach is consistent with policies V-A and V-B and supports policies II-B, II-C, and VI-A.

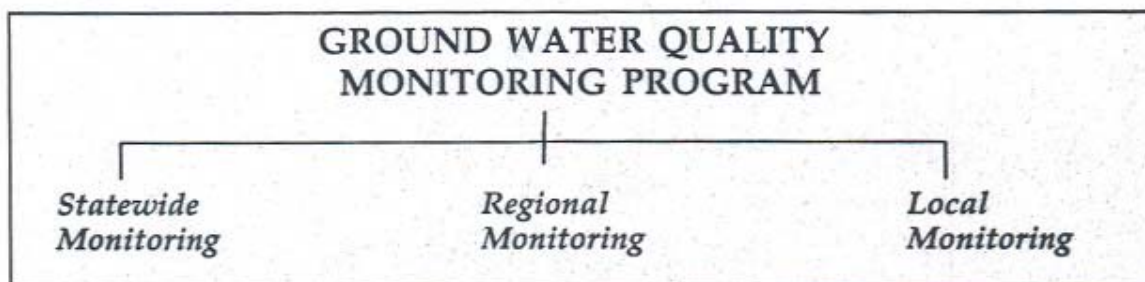


Figure 4. Parts of the Ground Water Quality Monitoring Program

	Area of Monitoring	Monitoring Duration	Types of Questions Monitoring Will Answer	Lead Agency
Statewide Monitoring	Statewide	Long term ongoing	What is general statewide ambient ground water quality? What are the trends over time? Are there problem areas that need more detailed monitoring? What are background levels? Is ground water generally suitable for drinking, agricultural, and industrial purposes?	IDWR
Regional Monitoring	Areas of high vulnerability, 10-250 square miles	Typically 1-5 years per area	What is ground water quality in areas of highest vulnerability? How much variability is there in ground water quality in these areas? How widespread are the problems? What needs to be addressed by applying BMPs? How effective are the BMPs?	IDHW
Local Monitoring	Areas of contamination incidents, less than 10 square miles	Typically 1-5 years per site (except where duration specified by state or federal statute)	Are there point-source impacts such as leaking underground tanks, chemical spill, or landfill? Once the area is identified and problem isolated is the management plan working to rectify the problem? Are additional studies needed? Monitoring may be required on a local scale to evaluate the effectiveness of BMPs.	IDHW

Table 3. Comparison of the three parts of the Ground Water Quality Monitoring Program

## ***I. Statewide Monitoring***

The statewide or Ambient Ground Water Quality Monitoring Network will characterize the water quality of the state's aquifers. This part is also designed to identify long-term trends in ground water quality. The network will obviously detect some potential water quality problems; however, these problems will be evaluated by the regional and local monitoring parts of the overall program. Statewide monitoring supports policies and is consistent with policies I-A, I-B, I-C, and V-A.

The network design is based on subdividing the state into about 20 hydrogeologically similar regimes. This approach is necessary because the hydrogeology in Idaho is extremely variable. The regime approach establishes smaller, more homogeneous ground water basins within which analyses of data can be done with greater reliability.

Existing wells and springs will be used as monitoring sites because construction of dedicated wells, though preferred, would be prohibitively expensive. Wells must have reliable construction data (total depth, casing depth(s), screened interval(s), etc.) and a driller's log. Wells having some historical ground water quality data will be preferred for the network. Monitoring sites must be available for year-round sampling and be available into the foreseeable future.

Monitoring sites will be distributed statewide throughout as many aquifers as possible; however, major aquifers will be emphasized. Each regime's population, size and known water quality variability will be considered when determining the number of sites per regime. Within each regime, areas of greatest ground water vulnerability (i.e., the shallowest aquifers) will receive the greatest number of monitoring sites.

Only ground water less than 26° Celsius (78.8° Fahrenheit) will be monitored, since thermal waters having temperatures greater than this are mineralized and not usually used for drinking water supplies.

Initially, all ground water samples will be analyzed for organic, radioactive, and bacterial constituents as well as pesticides, nutrients, and volatile organic compounds (Table 4). Monitoring sites will be re-sampled on a 1 to 3 year schedule depending on the initial water quality results. As the program develops, some wells will be sampled several times a year to better define seasonal variability. The testing procedures in Table 4 for radionuclides, pesticides and microbiology are general screening methods; results provide indications of biological and chemical concentrations. If these screens indicate constituent values above the normal range; additional analysis may be performed.

To be successful and cost effective, a certain degree of flexibility must be built into the network design and operation. For example, the initial number of sites per regime and the frequency of sampling per site will be evaluated as water quality data become available. These parameters will be readjusted as needed to assure that the water quality for each regime can be evaluated statistically.



Table 4. List of chemical constituents, properties, and compounds analyzed for the statewide ground water quality monitoring network.

<b>A. Inorganic constituents - primary including some common ions</b>		
Arsenic	Fluoride	Phosphorus
Bicarbonate	Iron	Potassium
Cadmium	Lead	Selenium
Calcium	Magnesium	Silica
Chloride	Manganese	Sodium
Chromium	Mercury	Sulfate
Copper	Nitrate (as N)	Total dissolved solids
Cyanide		
<b>B. Properties of ground water - field analyses</b>		<b>E. Organic compounds</b>
Alkalinity	pH	Gas chromatograph
Specific conductance	Temperature	analysis for 43 volatile
		organic compounds
<b>C. Microbiology</b>		<b>F. Pesticide scan</b>
Fecal Coliform*		Immunoassay screen for
		triazine, aldicarb, 2,4-D,
		and alachlor pesticides*
<b>D. Radionuclides</b>		
Gross alpha*	Gross beta*	
Radon		
NOTE: Analyses were recommended by the Ground Water Monitoring Workshop, April 1990, modified by the IDWR and approved by the Ground Water Monitoring Subcommittee.		
* These parameters or tests are used as general indicators of ground water quality; they are not absolute indicators of the ground water quality.		

## II. Regional Monitoring

The purpose of regional monitoring is to acquire data to address trends in greater detail or higher resolution than the statewide ambient network is designed to provide. Whereas the statewide network may only select 3 to 6 wells in a particular county, a regional project may select 50 to 200 wells in the same area. This approach is used in areas of high vulnerability or areas of particularly intensive land uses that may impact ground water. The project areas range in size from 10 - 250 square miles and project duration is limited to periods sufficient to gain an understanding of the local ground water quality and potential sources of impact, typically 1 to 5 years. Usually a limited suite of parameters tailored to local land uses is analyzed.

Regional monitoring is integral to meeting the legislative mandate to assess problem areas in ground water quality. Regional monitoring is required to support and is consistent with policies I-A, I-B, I-C, V-B, II-C, and VI-A. The resolution of the statewide network will in most cases be inadequate to accurately identify, delineate and explain ground water quality problems at the regional level. For example, if one well in the statewide network is found to have a high nitrate level, it may be incorrect to conclude that the region around that well (for which there are no other immediate sampling points) also has high nitrate. Regional monitoring provides the degree of detail needed to interpret the actual distribution of nitrate in the area. The statewide ambient network plays a valuable role in identifying regions in need of further intensive monitoring.

Another screening tool that will be used in the selection of regional monitoring project areas is the ground water vulnerability data being prepared as a cooperative effort between IDHW, IDWR, USGS and the Soil Conservation Service (SCS). The vulnerability of ground water has been evaluated based on data for soils, aquifer recharge and depth to first encountered ground water. Composite maps of vulnerability data rank areas that are potentially susceptible to ground water contamination. These maps have been prepared for the entire Snake River Plain. Studies are expanding the data base to include other major aquifers in Idaho.

Regional monitoring is most useful in evaluating nonpoint source impacts; that is, those dispersed and individually low impact sources that may cumulatively degrade ground water quality. Monitoring will identify contaminants that need to be addressed by the implementation of BMPs. Regional and/or local monitoring, in conjunction with the application of BMPs, will reveal whether BMPs are effective (policies I-C and II-B). Existing BMPs can be refined and new BMPs can be designed to protect the quality of the ground water if adequate monitoring is an integral part of the process. Ineffective practices may continue in the absence of appropriate ground water quality data.

### ***III. Local Monitoring***

The third part of the ground water monitoring program is called local monitoring and it involves data collection at the greatest degree of detail or finest resolution. This type of information cannot be obtained from either the statewide or regional monitoring which are designed to evaluate ground water on a larger scale, however statewide and regional monitoring may identify sites where more detailed studies are needed. Local monitoring most effectively addresses the legislative mandate to monitor “point(s) of use” and “point(s) of contamination”. Local monitoring supports and is consistent with policies I-A, I-B, I-C, V-B, II-B, II-C and VI-A.

Local monitoring involves sampling at and around individual sites of known or suspected contamination. It is this type of contamination that creates the greatest impacts on public health and raises the greatest degree of concern among the public. Project areas are typically less than 10 square miles and may be as small as several acres. Project duration is short, usually less than 5 years and possibly as short as a few months. Where local monitoring is conducted in response to a particular regulatory program, the areal extent and duration may exceed these ranges because of legal requirements.

The primary purpose for local monitoring is the investigation of point source impacts; those contamination incidents where a discrete point of release and zone of contami-

nation can be identified. Typical examples are a leaking underground storage tank, a chemical spill on the land surface, a ruptured petroleum pipeline, or leachate from a landfill. These problems are often discovered because one or two wells in a neighborhood become contaminated.

Local monitoring will answer several questions about a contamination incident including:

- Where is the source of contamination?
- How large is the contamination plume?
- Which direction is the plume moving and are domestic or other wells threatened?
- Are cleanup measures working and when can they be stopped?

In other instances, local monitoring may be used when there has been no contamination. Rather, monitoring is conducted to ensure that impacts are not occurring or to give an early warning if slight increases in contaminants are noted. Examples of this are the monitoring conducted at landfills, at sites where wastewater is applied to the land surface, and around underground storage tank areas. Monitoring of this type is often required as a condition for obtaining a permit or activity.

Some site-specific monitoring is funded by private parties in conjunction with the operation of a facility or with enforcement actions for cleanups. In addition, federal funds are provided under the Leaking Underground Storage Tank (LUST) cleanup fund and Superfund (Comprehensive Environmental Response, Compensation and Liability Act or CERCLA) for specific types of monitoring. However, contaminated wells are identified each year which need investigation to characterize the problem.

#### ***IV. Information System for Ground Water Quality Data***

Idaho Code Section 39-120 recognizes that the IDWR maintains a natural resource geographic information system for the state. Also included in the code is the directive to include ground water quality data in the IDWR system. The code directs that the “system shall be accessible to the public”. Any system implemented should be easily accessible and report or output oriented. The information system will support the needs addressed in Policy V-E. There are potentially many users of this data management system including state and federal agencies, consultants, industry, environmental and political organizations and to the general public. As the system develops, overall demands and needs of the users will determine its capabilities. In general, the system will be designed to be easy to use by persons with varying computer skills. The system will include simple and well-documented help screens and assistance information. It also will include procedures for requesting special products or services in the form of technical support, data reports or maps.

The information system, proposed to be called the Environmental Data Management System (EDMS), must be usable for determining long-term trends. The system will include data collected specifically for the state-funded monitoring programs and data from other sources, including historic data. Data to be entered into the system must be certified and then categorized according to its level of confidence.



Certification involves a verification procedure that assures the data residing on the IDWR system is correct. The organization that submits data must certify that the data are accurate and free of data entry errors.

Categorization involves assigning a level of confidence to all data that will reside on the information system. Levels of confidence will be assigned for all data based on the field techniques used to collect the data, and on the analytical procedures used to analyze the ground water samples.

The basic system will emphasize the greatest amount of flexibility at the user level. It will provide both on-line access and analysis and/or download capability for processing on another work station or personal computer.

### ***Ground Water Data Technical Review Committee***

A ground water data technical review committee will be established. The purpose of the group is to review all ground water quality data that will be submitted to the IDWR for inclusion in the statewide ground water information system. The primary objective of the group will be to review the data for the level of confidence that can be assigned to the data. The committee also will prioritize the information which will be entered. The committee will address the needs expressed in policies V-D and V-E.

The committee shall be composed of hydrogeologists or senior ground water quality analysts from the IDHW, IDWR, and IDA. The committee also should include a representative from the USGS, the Idaho Water Resources Research Institute (IWRRI), one private industry representative and at least one representative from the general public. The private industry representative and the general public representative may rotate annually among those firms and groups that are willing to participate. The representative must possess expertise in hydrogeology. IDWR will chair the committee and will be responsible for its administration and coordination.

Data submitted through the INEL oversight program will be accepted into the data base without further review; however, this separate approval shall be so identified in the database. The INEL oversight program will have a separate review group that will function in a similar manner as the technical review committee. Both data review groups will use the same levels of data certainty.

### ***Quality Assurance/Quality Control***

The Technical Review Committee will review all ground water quality data submitted for inclusion in the statewide ground water information system to insure that the QA/QC objectives were met during the investigation. All sampling activities are required to have a QA/QC plan prior to conducting the investigation. The plan shall address field sampling activities and laboratory or field analyses of samples. Policy V-E requires that the data submitted for inclusion in the EDMS meet certain requirements that mandate the development and use of appropriate QA/QC plans.

### ***Field QA/QC***

All field instruments will be calibrated before each sampling event in accordance with procedures established by the manufacturer of that instrument. Calibration records will be maintained with all field measurements. Replicate samples, trip blanks, and spikes will be collected as required for trace constituents, radionuclides and organic scan analyses for a percentage of sites sampled. A preservative blank shall be included where appropriate. If an immunoassay pesticide scan method or other field kit method is used, a duplicate for a percentage of sites sampled will be collected and analyzed using a separate method. Detailed QA/QC guidelines will be reviewed and updated as necessary by IDHW, IDWR, and IDA. Procedures and techniques established in the QA/QC guidelines will be followed where applicable for all state-funded monitoring programs.

### ***Laboratory QA/QC***

Quality assurance practices dictated by the appropriate analytical method and following certified laboratory procedures where appropriate will be complied with for all analyses. The specific analysis method for each constituent will be documented and will remain consistent with prevailing technology and the purpose of the sampling.

Quality assurance practices of the certified lab(s) will be followed. Holding times for samples will comply with those shown on Table 4-1 of the U.S. Environmental Protection Agency Technical Enforcement Guidance Document. Laboratories used will be required to provide both QA/QC and sampling results data in an approved electronic format for input into the state's information system.



**AGRICULTURAL GROUND WATER  
QUALITY PROTECTION  
PROGRAM FOR IDAHO**

**prepared by the  
Agricultural Chemical Subcommittee  
and adopted by the  
Idaho Ground Water Quality Council  
February 1, 1994**

# AGRICULTURAL GROUND WATER QUALITY PROTECTION PROGRAM

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## **APPENDICES**

Appendix A	Agricultural Chemical Source Matrix
Appendix B	Existing Agricultural Ground Water Programs
Appendix C	Ground Water Quality Responses to Public Comments

## **PREFACE**

Contained within the Idaho Ground Water Quality Plan are several items for implementing Policy II-B. This program has been developed to describe how agricultural activities and agricultural chemicals are to be managed for ground water protection. The following implementation features will be used in combination to accomplish the management objectives of the Agricultural Ground Water Quality Protection Program.

- Coordination of the existing Agricultural Pollution Abatement Plan, Nonpoint Source Management Plan, and the Ground Water Quality Plan.
- Coordination of the State Management Plan (SMP) for pesticides, as it is being developed to be consistent with the Ground Water Quality Plan.
- Development of an Information & Education Strategy.
- Development of the BMP Strategy.
- Development of the Regulatory Strategy.
- Establishment of an interdisciplinary team called the Agricultural Ground Water Quality Coordination Committee.
- Act upon the preliminary recommendations of the Agricultural Chemical Subcommittee to address potential agricultural sources of contamination (Agricultural Chemical Source Matrix).
- Act upon the recommendations of the Ground Water Program Interdisciplinary Team to make existing agricultural programs fully consistent with the Ground Water Quality Plan.

The progression from voluntary BMPs to a regulatory program is outlined in the first eight steps under Policy II-B. Step nine recognizes sources and activities already managed by an existing regulatory program. These steps are described in the Agricultural Ground Water Quality Protection Program as follows:

1. Voluntary BMPs will be the primary method of protecting ground water below the crop root zone.
2. The agricultural feedback loop is the method of choice to allow the development, implementation, evaluation and improvement of BMPs. The voluntary BMPs should be developed and implemented by the appropriate agencies on a site-specific basis with consideration for soil and crop characteristics and needs.

3. Based on the potential for a contamination [to occur] and [the] suspected cause, a specific time period will be set to determine effectiveness of BMPs in maintaining and improving ground water quality.
4. Effectiveness determination will be made by appropriate federal, state and local agencies including, but not limited to IDA, IDWR, NRCS, SCD, CES, and IDHW-DEQ.

Step four is the key trigger point in this program when water quality monitoring shows the ground water quality trend is not improving.

The result of the effectiveness evaluation determines the next course of action. The trigger points which determine which of the three options are available are detailed on page 69 of this program. The three options include:

5. If the ground water quality trend is not improving, then mandatory participation in applying voluntary BMPs is required.
6. If the ground water quality trend is still not improving, BMPs with more stringent protection must be applied.
7. If there is still no improvement in the ground water quality trend, regulatory programs will be required.

Step eight, below, may be used irrespectively of water quality monitoring or ground water quality trends. The regulatory option may be chosen based on high ground water vulnerability, chemical characteristics such as leachability, areas of significant use or a combination of these factors.

8. [New] Regulatory actions may be needed instead of BMPs as determined by a committee of appropriate agencies including but not limited to IDA, IDWR, NRCS, SCC, SCD, CES and IDHW-DEQ.
9. [Existing] Regulatory programs will also be applied when required by law. Step nine recognizes that some agricultural sources and activities are already managed by regulatory programs.

*Footnote: text added to original language in Ground Water Quality Plan designated as [ ]*



## INTRODUCTION

Agriculture accounted for 36% of Idaho's economy in 1991 (IASS, 1991). Considering the size and extent of this industry, it has the potential to place large demands on the state's resources. Mitigating agricultural impacts on ground water and preventing ground water contamination is a major challenge for the agricultural community and the agencies with agricultural program responsibilities.

In response, the **goal** of the Agricultural Ground Water Quality Protection Program is to protect the state's ground water and interconnected surface water from contamination originating from agricultural activities. The **purpose** of the program is to describe the management approaches to prevent ground water contamination and respond to the occurrence(s) of such ground water contamination.

The following are the **objectives** of the Agricultural Ground Water Quality Protection Program:

1. Identify agricultural sources of ground water contamination.
2. Identify and describe the management approaches.
3. Identify and describe implementation strategies.
4. Identify roles and responsibilities of agencies involved in the protection of ground water quality.
5. Provide basis for the development of an interagency Memorandum of Understanding which will solidify agency roles and responsibilities.
6. Describe how the Ground Water Quality Plan, the Agricultural Pollution Abatement Plan and the State Management Plan (SMP) for pesticides will interact and support the implementation of this program.
7. Inventory existing local, state, federal and industry agricultural ground water programs and assess the ground water protection capabilities of existing agricultural management programs.

## SOURCES OF CONTAMINATION

The potential agricultural contaminant sources are:

- Agricultural chemical storage and handling.
- Agricultural chemical mixing and loading.
- Agricultural chemical application practices.
- Agricultural practices.
- Confined animal feeding operations.
- Agricultural chemical waste disposal.
- Aquaculture waste management practices.
- Injection wells and other underground disposal methods.
- Agricultural chemical spills.
- Urban/nonagricultural chemical uses.
- Land applied waste and wastewater.
- Agricultural waste disposal.
- Well construction and abandonment.

These potential agricultural contaminant sources and their impacts on ground water are further identified in the Agricultural Chemical Source Matrix (Appendix A, Table 1). The corresponding existing management programs and recommendations addressing program deficiencies are identified for each source in the matrix. The matrix also shows the appropriate implementation strategy(ies) for each recommendation. Note: recommendations commonly support using a combination of implementation strategies (I&E, BMPs, regulations/rules) for the most efficient program results.

## MANAGEMENT APPROACHES

As stated in the Ground Water Quality Protection Act of 1989, it is the policy of the state to prevent contamination of ground water from any source to the maximum extent practical. Furthermore, the discovery of any contamination that poses a threat to existing or projected future beneficial uses of ground water will require appropriate actions to prevent further contamination. In order to attain these goals, Policy II-B of the Idaho Ground Water Quality Plan was specifically tailored to prevent ground water contamination from the unique practices found in agriculture. The two management approaches presented in this section direct the implementation of that policy.

### PREVENTION APPROACH

Prevention is the primary means to protect ground water from contamination. The Prevention Approach (Figure 1) is followed whenever the potential for ground water contamination exists. This approach needs to be supported by basic assessment of water quality conditions from the Statewide Ambient Monitoring Network and other available baseline data. The Prevention Approach recognizes existing voluntary and regulatory programs and recommends the development of new programs to enhance the protection of ground water from impacts due to agricultural activities. (Additional information can be found in Appendix A, the Agricultural Chemical Source Matrix.)

Prevention actions include:

- **Implementation of the Information and Education Strategy in all situations.**

The following activities, conducted as part of this strategy, are the basis for the prevention of ground water contamination.

- Development and implementation of interagency coordinated Information and Education programs.
- Research, development and distribution of Application Management Guidelines (I&E).

(Additional information on the I&E strategy is found on page 72.)

- **Implementation of the Best Management Practices Strategy when sources can be controlled by BMPs.**

A determination of BMP appropriateness is required under this approach (an example of a BMP process is found on page 71). Criteria to be used in this determination include: chemical characteristics, ground water susceptibility/vulnerability, feasible schedule for implementation and achievement of corrective results, contaminant modeling, quantity and areal extent of chemical use.

If BMPs are determined to be appropriate, the following activities are conducted as part of this strategy.

- Research, development and application of Best Management Practices.
- Development of area-wide (i.e., conservation districts) and site-specific (i.e., farm) water quality management plans.

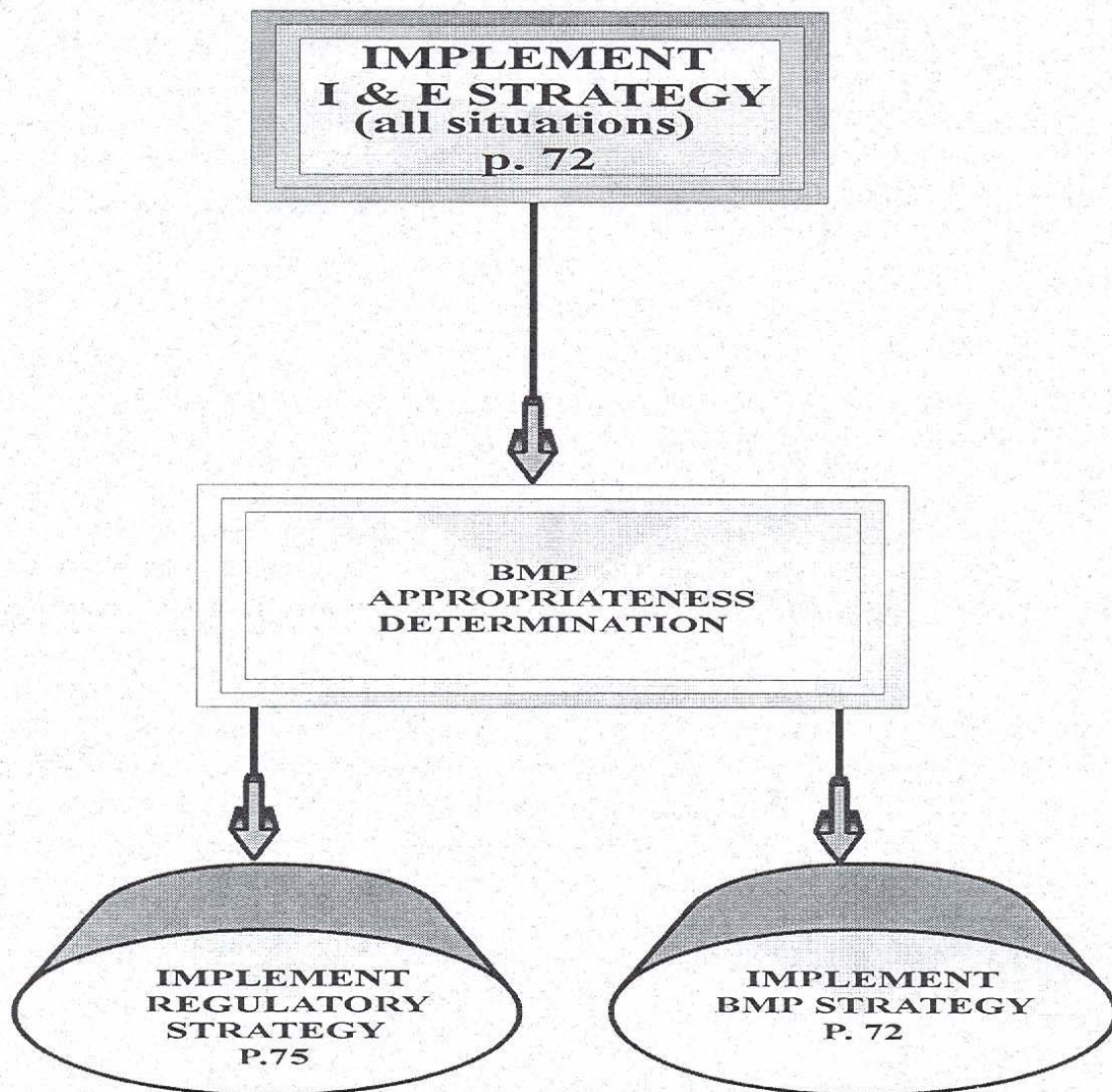
(Additional information on the BMP Strategy can be found on page 72.)

- **Implementation of the Regulatory Strategy when sources cannot be controlled by BMPs.**

If BMPs are determined not to be appropriate, existing or newly developed regulations that prevent unreasonable contamination, deterioration or degradation of ground water or interconnected surface waters are used or promulgated. (Additional information on the Regulatory Strategy is found on page 75. Also refer to the Agricultural Chemical Source Matrix, Appendix A.)

## **Prevention Approach Flowchart**

### **Potential Contamination**



**Figure 1.** The Prevention Approach Flowchart is utilized when there is potential for ground water contamination originating from agricultural sources. Information and Education strategies will be implemented in all situations. Best Management Practices or regulatory strategies are options to be utilized.

## RESPONSE APPROACH

A detection of an agricultural contaminant in ground water triggers the Response Approach. The Response Approach (Figure 2) begins with an investigation which is conducted to identify the cause, extent and severity of the problem. In the event a trend already exists and shows no improvement due to inadequate participation in a voluntary BMP, BMP participation and implementation will be increased and the BMP will continue. The investigation will be coordinated through the Monitoring Technical Committee. Results of the investigation will be utilized to determine compliance with existing regulatory programs and the subsequent response action(s). This approach needs to be supported by contaminant specific assessment on a regional and/or local basis.

Response actions include:

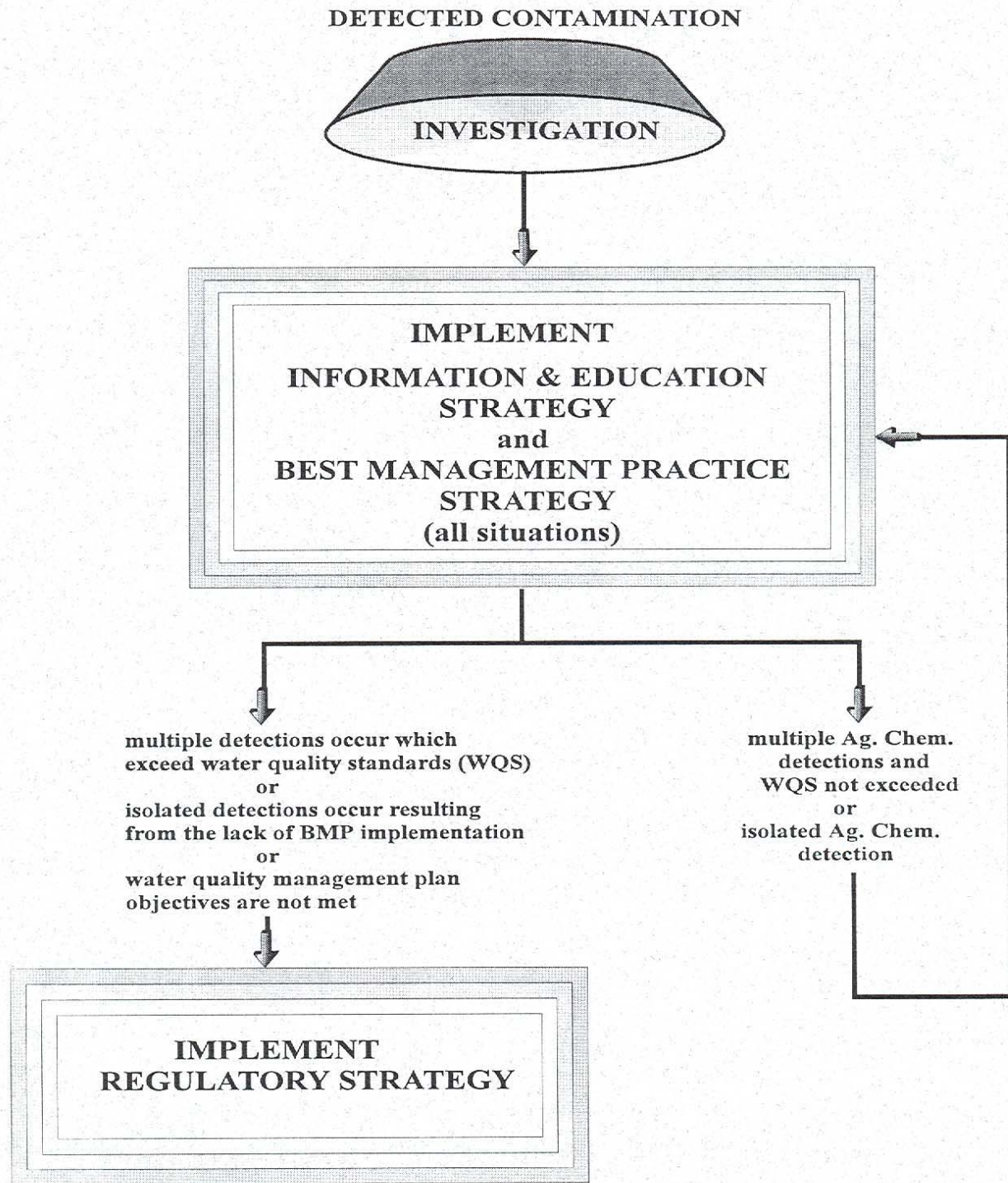
- **Implementation of the Information and Education, and Best Management Practices Strategies through the following activities in all situations.**
  - Secure an adequate level of BMP participation.
  - Continue monitoring and evaluate results for trends.
  - Conduct contaminant specific Information and Education programs for affected public.
  - Research, development and distribution of a contaminant specific Application Management Guidelines.
  - Research, development and application of contaminant specific BMPs.
  - Develop contaminant specific area-wide (i.e., conservation districts) and site-specific (i.e., farm) water quality management plans or water quality provisions within an existing plan.
- **Implementation of Regulatory Strategy when:**
  - Multiple agricultural chemical detections and water quality standards are exceeded.
  - Isolated detections occur resulting from the lack of BMP implementation.
  - Water quality management plan objectives are not met, or trends are not improving after the voluntary BMP strategy has been established and BMPs are fully implemented (see page 79).

Regulatory responses to agricultural contamination may include mandatory implementation of BMPs, or result in the restriction or prohibition of certain agricultural activities or chemicals. The regulatory response will be utilized to address specific chemicals or areas of concern and will be used in conjunction with I&E and BMP strategies.

As regulatory programs are implemented, they will be periodically evaluated for effectiveness in responding to these concerns. Results of this feedback will be provided through a Regulatory Actions Group in order to ensure continuity in this strategy.



# RESPONSE APPROACH FLOWCHART



**Figure 2.** The Response Approach Flowchart is utilized when there has been contamination detected in ground water which may have originated from an agricultural source. An investigation follows the detection of a contaminant. Following the investigative period, information and education along with Best Management Practices strategies are implemented. A regulatory strategy may be implemented if certain conditions are not achieved.



## **IMPLEMENTATION STRATEGIES**

The Information and Education, BMP and Regulatory Strategies are integral components of both the prevention and the response approaches.

### **THE INFORMATION AND EDUCATION STRATEGY**

This strategy supports the intent of Policy III-A which is an informed public is more likely to prevent contamination voluntarily and without the need for regulatory programs.

The Information and Education (I&E) strategy relies chiefly on current research-based publications by entities such as the Cooperative Extension System and the Agricultural Experiment Stations (i.e., University of Idaho's Fertilizer Guides and Pest Control Recommendations). The focus of these publications is on scientific information, emphasizing practices and procedures developed specifically for highly sensitive activities, leachable compounds, and vulnerable ground water areas. This information is used to develop agricultural chemical/ground water protection I&E programs which are promoted through seminars, workshops, pamphlets, and public announcements. These scientific guidelines are used as the basis for the development of Best Management Practices (BMPs) or regulations if required in the future.

Many state and federal agencies, institutions and industry groups are currently involved in agricultural ground water I&E activities. These diverse activities are inherent to BMP and Regulatory Strategies for ground water quality protection. The primary goal of I&E is to encourage implementation of a BMP or component practice, either independently or through participation in agricultural water quality projects or programs.

The University of Idaho is designated as the I&E clearinghouse and will facilitate coordination of agricultural I&E efforts for the state.

### **THE BEST MANAGEMENT PRACTICES STRATEGY**

Voluntary implementation of Best Management Practices (BMPs) is expected to be the primary and most effective method of protecting ground water beneath crop root zones. (Number 1 of 9 implementation steps in GWQ Plan.) BMPs consist of compatible, interacting component practices. In Idaho, component practices used in the development of agricultural BMPs are identified in the Agricultural Pollution Abatement Plan (APAP). These component practices are based on standards and specifications adopted by the USDA Natural Resource Conservation Service (NRCS) and information published through the University of Idaho-Cooperative Extension System (CES).

A site-specific BMP is developed to address the potential impact(s) that a particular activity has on surface water and ground water quality. It is designed by an experienced conservationist or resource specialist and is based on contaminant characteristics and site information along with the landowner/producer's needs and capabilities. Due to the many parameters considered in BMP development, each BMP is site specific. The typical process used in developing a BMP is shown in Figure 3 which illustrates three possible BMP alternatives (component practice combinations).

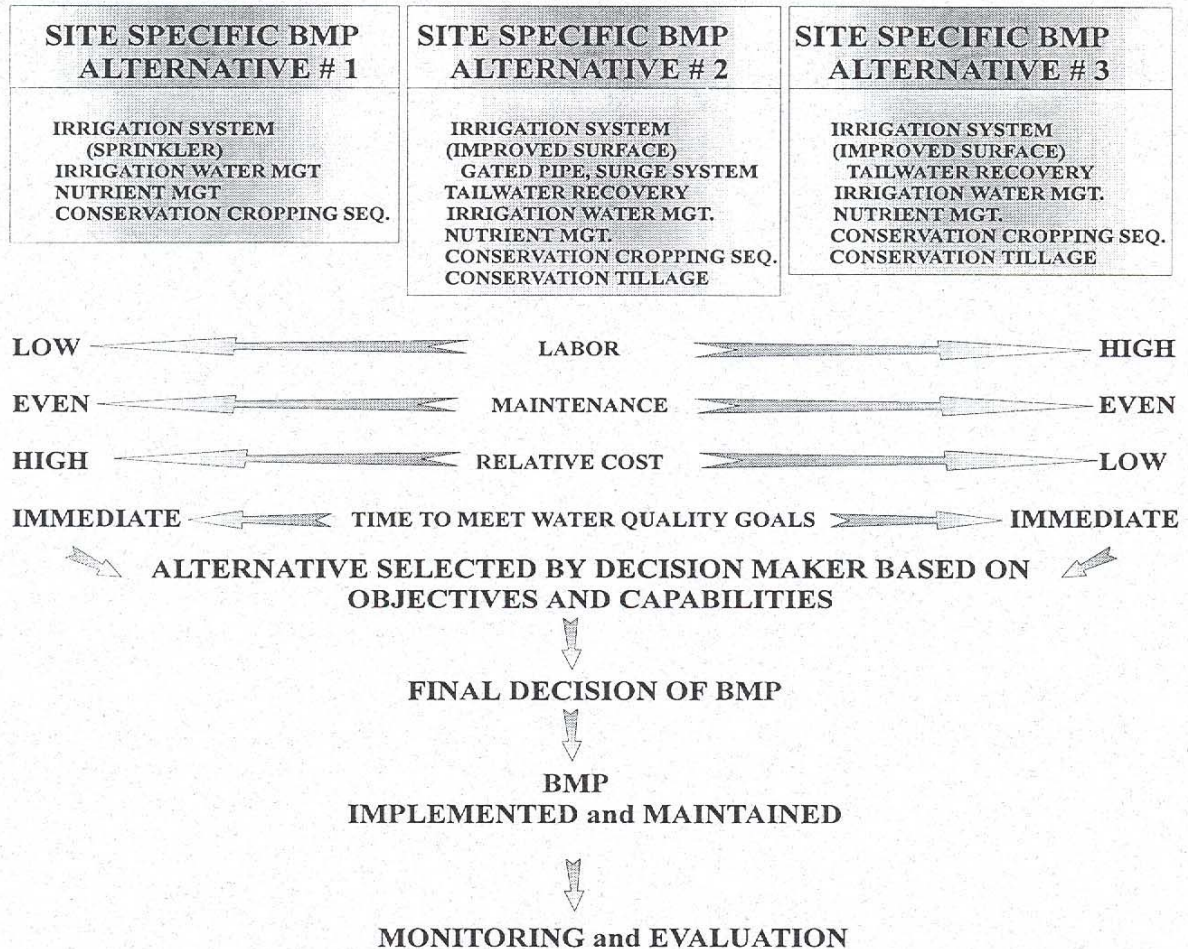
An interagency/multidisciplinary BMP Technical Committee has been established through the APAP to develop, evaluate and improve BMP component practices. The BMP Technical Committee is chaired by the Idaho Soil Conservation Commission (SCC) and its membership is composed of representatives from agencies signatory to the Nonpoint Source MOU and other agencies as appropriate. At the local level, Soil Conservation Districts (SCD) have responsibilities to identify the need for new or improved BMP component practices and to provide for public input.

Ultimately, water quality improvements and maintenance are achieved through performance evaluations and refinement of BMPs. Performance evaluations are based on water quality monitoring results, field audits of BMP implementation and facility inspections to identify potential sources. Performance evaluations are completed through an interagency BMP effectiveness subcommittee using the BMP Feedback Loop process detailed in the section on Mechanisms for Implementation, page 77.

## DEVELOPMENT OF IRRIGATED CROPLAND BMP USING COMPONENT PRACTICES

**Situation: Beneficial Use Impaired - DRINKING WATER SUPPLY**  
**Potential Contamination - NUTRIENT (NITROGEN)**  
**Source - NITROGEN FERTILIZER APPLIED TO CROPLAND**  
**Land Use - IRRIGATED CROPLAND (SURFACE)**

**Procedure: CONDUCT RESOURCE INVENTORY AND SITE ASSESSMENT,  
EVALUATE DATA TO DEVELOP ALTERNATIVE BMPs**



**Figure 3.** Component practices are used alone or in combination as a part of a Best Management Practices process to improve ground water quality. The irrigated cropland BMP may utilize various component practices. These practices are organized as alternatives, and through a decision making process the appropriate alternative is chosen. The BMP is implemented and monitored for effectiveness following the theory of the BMP Feedback Loop.

## THE REGULATORY STRATEGY

State and federal authorities regulate certain agricultural products and activities which have high potential for impacting ground water. (Number 9 of 9 implementation steps in GWQ Plan.) The regulatory strategy can require mandatory implementation of BMPs, regulatory enforcement can require mandatory implementation of BMPs, prohibit or restrict the use of certain agricultural chemicals or activities, and require preventive procedures for the control of potential sources of contamination.

The following is a list of existing state regulatory authorities govern agricultural activities that can impact ground water.

1. Title 39, Chapter 1, Idaho Code (Environmental Health and Protection Act).
2. Title 22, Chapter 34, Idaho Code (Idaho Pesticide Law).
3. Title 22, Chapter 6, Idaho Code (Idaho Fertilizer Law).
4. Title 22, Chapter 14, Idaho Code (Idaho Chemigation Law).
5. Title 42, Chapter 2 and 39, Idaho Code (Underground Injection Control Program and Well Construction Standards).
6. Title 39, Chapter 1, Idaho Code (Idaho Water Quality Standards and Wastewater Treatment Requirements).
7. Title 22, Chapter 34 and Chapter 6, Idaho Code (Secondary Containment Law).
8. Ground Water Quality Regulations are under development pursuant to Title 39, Chapter 1.
9. State Management Plan (SMP) for pesticides is under development pursuant to FIFRA.
10. Title 67, Chapter 52, Idaho Code (Idaho Public Drinking Water Regulations).

The EPA retains oversight responsibilities for these Congressional Acts while state agencies have the task of implementing these acts through state programs.

Recommendations concerning the use of regulations to manage potential agricultural sources of ground water contamination are shown in the Agricultural Chemical Source Matrix (Appendix A) Regulatory Actions may be needed instead of BMPs as determined by a committee of appropriate agencies, including but not limited to IDA, NRCS, SCC, SCD, CES, and IDHW-DEQ. In the event that new regulatory programs become necessary to augment existing programs, it is recommended that the Regulatory Action Group facilitate interagency coordination and assure consistency with existing programs. This approach is intended to enhance, not replace, the regulatory development process initiated by the agency with specific authority. Recommendations from the Regulatory Action Group will be submitted through the Ground Water Quality Coordination Committee to the appropriate agency for action. (Number 8 of 9 implementation steps in the GWQ Plan.)

## MECHANISMS FOR IMPLEMENTATION

To accommodate implementation of the many agricultural programs, several mechanisms have been and are being developed to clearly define roles and responsibilities. The following is a compilation of mechanisms for implementation of the Prevention and Response Management Approaches.

### COORDINATION COMMITTEE

An Agricultural Water Quality Coordination Committee will be established. The objectives of the committee will be to facilitate, coordinate, and ensure consistency of all components of the state's Agricultural Ground Water Quality Protection Program. These components include the Ground Water Quality Plan, the Nonpoint Source Management Program, Agricultural Pollution Abatement Plan, State Management Plan (SMP) for pesticides, and coordinated Nonpoint Source Water Quality Monitoring Program. This committee is intended to enhance, not replace, the regulatory process initiated by an agency with specific program authority.

The Coordination Committee will be responsible for assuring that the appropriateness of implementing a BMP vs. regulatory strategy will be handled by the appropriate agency, and will solicit input from the Technical, Monitoring, Effectiveness, and Regulatory Groups in making such determinations. (Recommended criteria to be utilized in this process are discussed on page 66 and 67.) This committee will also ensure that ground water quality management is coordinated with surface water quality management for the protection of both resources, and will act to facilitate the overall program evaluation process. The State Management Plan (SMP) for pesticides and the Coordinated Nonpoint Source Water Quality Monitoring Program ensure a consistent overall program. This committee will ensure that ground water quality managements are coordinated with surface water quality management for the protection of both resources. The Agricultural Ground Water Quality Coordination Committee will perform in an advisory capacity and will report to the Ground Water Quality Council or its successor, or in their absence will be advisory to the agency with specific program authority.

The Coordination Committee will accomplish these objectives through participation in appropriate groups and committees including but not limited to the following:

#### *Existing Committee(s)*

- BMP Technical Committee
  - Existing under the APAP; to develop and improve component practices approved for designing agricultural BMPs; SCC chaired.
- BMP Effectiveness Subcommittee
  - Existing under the APAP; as part of BMP Technical Committee; to close the gap in the BMP Feedback Loop through quantifiable methods; identify sources for BMP cost sharing and incentives; SCC chaired.

- Monitoring Technical Committee
  - To be restructured under the Coordinated NPS Water Quality Monitoring Program; to establish and maintain a coordinated regional and local ground water quality monitoring effort consistent with the Ground Water Quality Plan; encourage ground water monitoring data be submitted to the state's EDMS; DEQ chaired.

*Future Committees and Work Groups to be Established*

- Information & Education Coordination Group
  - To be established; to oversee consistent delivery in agricultural I&E programs to all audiences on a statewide basis.
- Regulatory Action Group
  - To be established; to review status of Ag Chem Matrix recommendations and recommend new regulatory programs that become necessary.

The Idaho Department of Agriculture will be responsible for the administration and coordination of the Agricultural Ground Water Quality Committee. The committee will be composed of one representative from the Idaho Association of Soil Conservation Districts (IASCD) and appropriate state and federal agencies including, IDHW-DEQ, IDA, IDWR, SCC, CES, EPA, and NRCS. Additionally, this group will include a representative from each of the following: an environmental group, agricultural chemical industry, agricultural producers, and an education and research group. The membership of the Agricultural Ground Water Quality Coordination Committee may be adjusted to include additional federal and state agencies, water user groups, local government representatives, or other stakeholders approved by a majority vote of either the Ground Water Quality Council, or its successor.

This committee will solicit comments from the general public and will provide opportunities for local participation and review. This committee will also coordinate the activities of the various work groups and committees relative to agricultural ground water programs.

## **BMP FEEDBACK LOOP**

The BMP Feedback Loop is a process to reduce nonpoint source water pollution through the development, installation, evaluation and refinement of BMPs. (Number 2 of 9 implementation steps in GWQ Plan.)

This process originated in the Idaho Water Quality Standards and Wastewater Treatment Requirements. Using established standards, the BMP Feedback Loop Process proceeds through the following steps:

### **Step 1. Water Quality Criteria**

Water quality criteria to protect the identified beneficial use(s) must be established along with a water quality monitoring plan.

## Step 2. BMP Development/Improvement

Factors for BMP development and improvement are technical feasibility, economic feasibility and social acceptability. The following will be considered during the BMP development/improvement step:

- Existing water quality characteristics.
- Predetermined water quality criteria.
- Characteristics of the site including soils, slope, climate, vadose zone properties, ground water vulnerability, direction and gradient of ground water flow.
- Characteristics of the crop including related rotational sequences and production practices.
- Characteristics of chemicals used including leaching potential, persistence, solubility, absorption properties, and application practices.
- Current technology based on research and demonstration of the practice.
- Wellhead protection areas, areas of drilling concern, special ground water management areas, sole source aquifers, special resource waters or an aquifer categorization.

## Step 3. Implementation and Maintenance

The BMP is implemented on-site by land owners and managers through local, state, or federal projects and programs. BMP implementation and maintenance is typically supported with state and federal cost-share monies and are coordinated through area-wide and site-specific water quality management plans.

Water quality management plans include:

- Provisions for baseline and trend water quality monitoring.
- Specific time frames for implementation and evaluation based on potential for a contamination and the suspected cause. (Number 3 of 9 implementation steps in GWQ Plan.)
- Water quality protection objectives.
- Level of participation to meet objectives.
- Provisions to determine technical and economical feasibility and social acceptability.
- A description of the farm operations, including crops, livestock and equipment.
- A description of farm resources, including soil and hydrogeologic characteristics.
- The specific agricultural BMPs to be implemented, maintained and improved as needed.
- Provisions for an effectiveness evaluation including water quality, and BMP adequacy.

- Recommendations for application rates and disposal methods for nutrients, pesticides, and animal waste materials.

#### Step 4. Effectiveness Evaluation

The BMP effectiveness in achieving the predetermined water quality criteria is evaluated by comparing monitoring data and identified trends. The BMP Effectiveness Subcommittee is responsible for this determination and for verifying water quality goals and monitoring procedures (Number 4 of 9 implementation steps in the GWQ Plan.)

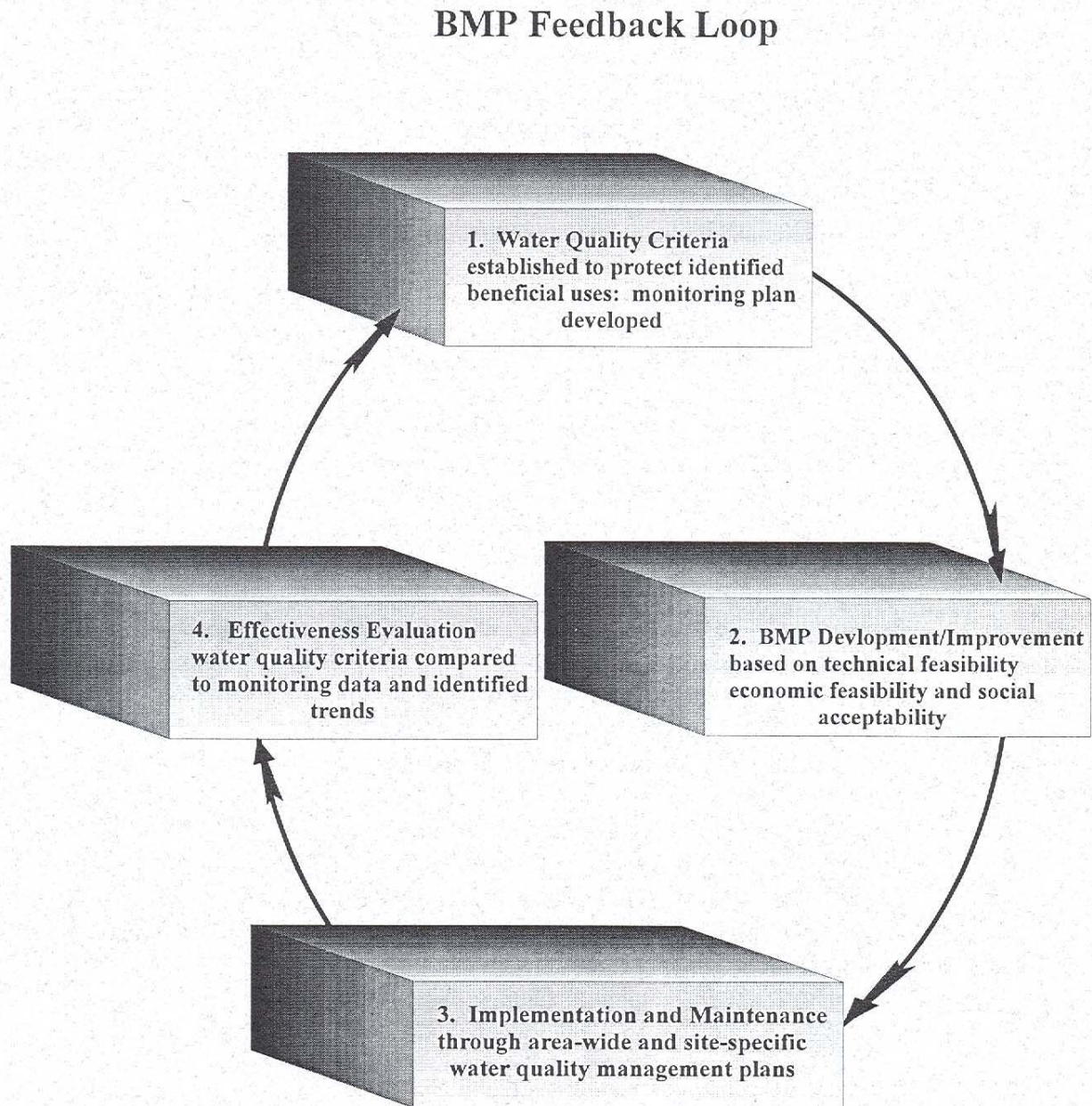
Effectiveness evaluations occur on a predetermined time schedule as established in the water quality management plan and includes a review and report on the following criteria:

- Verification that the BMP is installed and functioning as designed.
- The predetermined water quality objectives and crop production needs are met.
- Comparison of the water quality monitoring data to pre-established water quality criteria.
- Confirmation of the level of participation through on-site evaluations.
- Water quality monitoring to detect contaminants and track trends.
- Confirmation that ground water directed BMPs do not adversely impact surface water or other natural resources.

If the criteria are achieved and the BMP is adequate as designed, implemented and maintained, then the FBL will continue. If the criteria are not achieved due to lack of participation, then necessary participation in applying the BMPs must be secured. If participation is adequate and criteria are still not achieved, then the BMP will be improved, the process of the feedback loop will continue, and rules/regulations will be applied if appropriate. (Number 5, 6, and 7 of 9 implementation steps in the GWQ Plan.)



The following depicts the "BMP Feedback Loop" which is used to complete the BMP process (Figure 4).



**Figure 4.** The BMP Feedback Loop is a process to reduce nonpoint source water pollution through the development, installation, evaluation, and refinement of BMPs.

## **WATER QUALITY MANAGEMENT PLANS**

The intended purpose of a water quality management plan is to provide agricultural producers with guidance and information needed to comply with state and federal water quality laws and to maintain or enhance water quality to support designated beneficial uses. Owners and operators of lands where the potential for ground water contamination exists should request assistance to develop and implement water quality management plans. In most instances, this can be accomplished by establishing a cooperative agreement with the appropriate land management agency which includes water quality goals as part of an overall farm management plan.

Water quality management plans may be area-wide (i.e., conservation districts) or site-specific (i.e., farm). The provisions to address water quality management may already exist through some state or federal programs such as the State Agricultural Water Quality Program (SAWQP) or the USDA Water Quality Incentive Program (WQIP). In such cases, a separate plan does not need to be developed; rather, the provisions of the existing water quality management plan will be included in the overall farm management plan or an on-farm cooperative agreement.

Since the main goal is to protect ground water, the intent of an operative water quality management plan is that it should apply to all farmers irrespective of their involvement in a state or federal program or project. It is by applying the prevention and protection policies of the Ground Water Quality Plan to land use activities, including agricultural activities, that this goal can be achieved. Therefore, in all cases, an operative plan should be comprehensive with appropriate state and federal coordination.

The major component of a plan is typically the implementation and maintenance of BMPs. Step 3 of the BMP Feedback Loop, describes how this mechanism can be utilized in support of a water quality management plan. Other provisions may address information and education activities and pertinent regulatory controls.

## **EVALUATIONS**

### ***Implementation Strategy Evaluations***

An important part of the Agricultural Ground Water Quality Protection Program is the evaluation of its Implementation Strategies. This evaluation will determine whether the selected implementation strategy(s) are working effectively. This process will identify future needs for I&E, BMPs or regulatory controls.

Evaluation of the applicability, use and acceptance of I&E and Application Management Guidelines will need to be conducted by the I&E Coordination Group. To implement the BMP Feedback Loop, the BMP review process was initiated to determine the adequacy of component practices, participation level for each specific BMP, and protection of surface and ground water.

The BMP Effectiveness Subcommittee is responsible for coordinating closely with the BMP Technical Committee and overseeing BMP effectiveness, closure of the BMP Feedback Loop process and the workability of each water quality management plan. The results of water quality monitoring will be used in the evaluation process to determine the need for new or improved BMPs, or for a regulatory response. The results of effectiveness reviews should be incorporated into water quality monitoring plans as they are developed or revised.

Agricultural chemical use will be monitored to determine regulatory compliance and whether the rules/regulations are effectively protecting ground water quality. The Regulatory Action Group will assess the performance of current regulatory programs and make recommendations to the Agricultural Coordination Committee for additional regulatory activities that may be needed to protect ground water.

### ***Overall Program Evaluations***

The Agricultural Chemical Ground Water Coordination Committee is responsible for ensuring that overall program evaluations are accomplished. Evaluations of the Agricultural Ground Water Quality Protection Program must use a combination of water quality management plan effectiveness reviews and data from ground water monitoring. The findings of effectiveness reviews are compiled and assessed to determine the success of implementing the Agricultural Ground Water Quality Protection Program. Review criteria for water quality management plans include:

- Attainment of goals for installation of BMPs.
- Attainment of a minimum level of participation.
- Attainment of goals for reduction of contaminant loadings.
- Contribution toward meeting state water quality goals.
- Prudent use and management of public funds.

## **GROUND WATER MONITORING**

Water quality monitoring is the primary means of determining success of the Agricultural Ground Water Quality Protection Program. Agricultural ground water monitoring components, including monitoring protocol, will be consistent with the Coordinated Nonpoint Source Water Quality Monitoring Program for Idaho (Clark, 1990), the Ground Water and Soils Quality Assurance Project Plan (QAPP) Development Manual, (G. Winter, 1993) and the Idaho Ground Water Quality Plan (GWQC, 1992). The scale of monitoring will be assessed on a project-by-project basis to coordinate and utilize existing monitoring efforts and the project goals.

### **Monitoring Objectives**

Monitoring objectives are based on existing or potential ground water contamination issues and the data needs of the water quality management plan. As a general rule, initial monitoring objectives include:

- Establishing the current status of beneficial uses.
- Identifying and qualifying the contaminants and their sources.

The purpose, scale, and duration of monitoring efforts will be conducted at one of the following three levels:

- Statewide ambient monitoring incorporates a random baseline monitoring network throughout the state which may identify areas of water quality concerns. When water quality problems are identified through the statewide monitoring network, they are referred for follow-up to the regional and local monitoring programs as defined in the Ground Water Quality Plan.
- Regional monitoring identifies and assesses nonpoint source contamination, particularly in areas of high vulnerability. Additionally, this level of monitoring determines needs to be addressed through the application of BMPs and subsequent effectiveness evaluation.
- Local monitoring applies to specific sites to be investigated in order to delineate the source and extent of contamination. Secondly, this level of monitoring may be used to evaluate the effectiveness of BMPs.

#### Monitoring Plans

To fully implement the BMP Feedback Loop process in accordance with the Idaho Water Quality Standards, a project monitoring plan is required for each new water quality management plan. Project monitoring plans are to be jointly developed by IDA, IDHW-DEQ and other agencies as appropriate. The purpose of this plan is to address the specific objectives of the management plan, as well as those of this program. Upon completion of the monitoring effort, a Water Quality Status Report will be issued through IDHW-DEQ for all contracts. When a project monitoring plan is developed, a number of steps may be taken to ensure water quality protection. The following actions will be considered in the development of project monitoring plans:

- Identification of any potential sources of contamination within a localized area.
- Categorization of appropriate local concerns into monitoring objectives.
- Selection of parameters that can be used to address each objective.
- Design of an appropriate monitoring strategy.
- Identify procedures for conducting follow-up investigations.

The development and use of ground water monitoring protocol will provide a more detailed framework for the formulation of project monitoring plans. Through established protocol the monitoring plan activities will enhance the success of water quality management plans.

## **GIS MAPPING/SUSCEPTIBILITY/VULNERABILITY**

A useful mechanism for visualizing the potential impact of land use activities on ground water is the Geographical Information System (GIS) for computer mapping. Two types of ground water mapping that are being developed and used in Idaho are:

- Ground Water Susceptibility Mapping- entails the compilation and evaluation of relevant data on the physical system which includes depth to ground water, availability of recharge and soil types. The data is combined using GIS technology to indicate the potential for movement of any contaminant to ground water.
- Ground Water Vulnerability Mapping- adds data layers to the layers used in susceptibility mapping. The additional data layers describe potential contaminant sources and/or contaminant loading that can impact ground water quality.

Susceptibility/vulnerability mapping is commonly used in conjunction with other implementation mechanisms. Areas of high susceptibility/vulnerability can be given priority for implementing ground water activities. Ground water monitoring and evaluation can be directed to ensure that protective actions are effectively used in areas of concern.

Susceptibility/vulnerability maps are designed to predict the degree of vulnerability assigned to a given area. The degree of vulnerability directly influences the type of land use practice required to keep contaminants from entering ground water. The maps can be used in the management of point and nonpoint sources of contamination that can improve ground water quality, including agricultural activities and agricultural chemicals.

Overall, ground water susceptibility/vulnerability mapping is still in the applied research stage in Idaho. At this time the mapping approaches are site-specific and no statewide methodology or rating system has been adopted.

## **MEMORANDA OF UNDERSTANDING**

Two MOUs address roles and responsibilities for agriculturally related ground water quality programs. The first MOU entitled *Memorandum of Understanding Implementing the Nonpoint Source Water Quality Program in the State of Idaho* addresses the implementation of nonpoint source water quality provisions of the Federal Clean Water Act. This MOU was signed by the EPA, IDL, SCC, USDA-NRCS, IDHW-DEQ, IDA, IDWR, USDA-CES, USDA-ASCS, BLM, and the USFS. Through an appendix to this MOU, signatories further agreed to implement the Agricultural Pollution Abatement Plan (1991) by the directives included in the Ground Water Quality Plan, 1992, and to provide assistance in the development of a State Management Plan (SMP) for pesticides.

The second MOU is a Memorandum of Understanding (MOU) between IDHW-DEQ, IDWR and IDA related to the implementation of the Ground Water Quality Plan for the State of Idaho. The document is entitled *Idaho Ground Water Protection Interagency Cooperative Agreement* and was signed by the Director of the Idaho Department of Water Resources, Karl J. Dreher, on May 30, 1996, the Administrator of Division of Environmental Quality, Wallace N. Cory, P.E., on May 31, 1996, and by the Director of the Idaho Department of Agriculture, Patrick A. Takasugi, on June 28, 1996. The Ground Water Quality Plan directs the MOU to specifically address the roles of IDA, IDWR, and IDHW-DEQ in the implementation of the Ground Water Quality Plan which includes agricultural activities and agricultural chemicals as they relate to ground water.

## **AGENCY ROLES**

The Ground Water Quality Protection Act of 1989 (Idaho Code 39-120) recognizes responsibilities for the three management agencies responsible for protection of ground water quality.

- IDHW-DEQ is designated as the primary agency to coordinate and administer ground water quality protection programs for the state and has the responsibility for collecting and monitoring data for water quality management purposes.
- IDWR has the responsibility to maintain the natural resource geographic information system for the state and is the collector of baseline data for the state's water resources.
- IDA is responsible for regulating the use of pesticides and fertilizers and for licensing applicators.

The roles and authority for IDHW-DEQ, IDA, and IDWR relative to agricultural ground water protection are summarized below. These activities will be conducted in order to effectively implement the Ground Water Quality Plan, and in particular, Policy II-B, the Agricultural Chemical and Nutrient Management Policy.

### **IDHW-DIVISION OF ENVIRONMENTAL QUALITY (IDHW-DEQ)**

This agency is authorized to protect ground water quality from agricultural activities and chemicals pursuant to Idaho Code Title 39, Chapter 1, Idaho Environmental Protection and Health Act. This statute provides the director with authority to adopt rules and regulations and to take enforcement actions to protect public health and the environment.

DEQ's role in the Agricultural Ground Water Quality Protection Program is identified as follows:

### **MEET GROUND WATER QUALITY GOALS**

- Set attainable goals for water quality improvement and protection of beneficial uses.
- As a water quality enforcement agency, periodically review progress of the Agricultural Ground Water Quality Protection Program in meeting water quality standards, drinking water standards, ground water standards, and other specific water quality goals as well as make recommendations for corrective strategy.
- Periodically evaluate applied Best Management Practices (BMPs) via the APAP BMP Technical Committee and the BMP Effectiveness Subcommittee for effectiveness in meeting water quality goals.

- Provide continuity with EPA to assure the Agricultural Ground Water Quality Protection Program meets the goals and procedural requirements of the Federal Clean Water Act.
- Develop and promulgate ground water quality protection rules, in cooperation with other appropriate agencies, as directed in the Ground Water Quality Plan to establish ground water quality standards, and to delineate aquifer categories for the protection of existing and future beneficial uses of ground water.

## **GROUND WATER MONITORING/DATA MANAGEMENT SYSTEMS**

- Conduct regional and local ground water monitoring in accordance with the parameters outlined in the monitoring program section of the Ground Water Quality Plan.
- Develop monitoring programs according to the Ground Water Quality Plan's monitoring program and the Coordinated Nonpoint Source Water Quality Monitoring Program for Idaho, in order to evaluate the effectiveness of the Agricultural Ground Water Quality Protection Program.
- Develop the nonpoint source data management system as described in the Coordinated Nonpoint Source Water Quality Monitoring Program and coordinate with the state's Environmental Data Management System (EDMS).
- Submit ground water quality data related to agricultural activities to the Environmental Data Management System (EDMS).
- Jointly develop, with IDA and other appropriate agencies, project monitoring plans as required for each water quality management plan.
- Issue a Water Quality Status Report for all contracts as required under the Idaho Water Quality Management Plan.
- Coordinate with the production and distribution of an annual Idaho Ground Water Quality Contamination Report jointly with IDA and IDWR.

## **IMPLEMENTATION OF IDAHO'S GROUND WATER QUALITY PLAN**

- Coordinate integration of the APAP including the SAWQP, the Agricultural Ground Water Quality Protection Program, and the State Management Plan (SMP) for pesticides, to be consistent with the Ground Water Quality Plan.
- Participate with IDA and other agencies in the development of the State Management Plan (SMP) for pesticides.



- Jointly develop a Memorandum of Understanding (MOU) with IDA and IDWR to implement the Ground Water Quality Plan.
- Act on recommendations of the Evaluations of the Ground Water Related Programs to ensure programs are consistent with the Ground Water Quality Plan.

#### **IMPLEMENTATION OF THE AGRICULTURAL GROUND WATER PROGRAM**

- Jointly with the IDA, NRCS, SCDs, EPA, IDWR, CES, and SCC, periodically review and update the Agricultural Ground Water Quality Protection Program, as needed.
- Participate jointly with IDA, IDWR, SCC, NRCS and other appropriate agencies in the Agricultural Ground Water Quality Coordination Committee as detailed in this document.
- Work with state and federal agencies, user and interest groups to implement the Agricultural Ground Water Quality Protection Program.

#### **DEVELOPMENT OF COMPREHENSIVE STATE GROUND WATER PROTECTION PROGRAM**

- Work cooperatively with EPA and other appropriate agencies to develop Idaho's Comprehensive State Ground Water Protection Program (CSGWPP).

#### **IDAHO DEPARTMENT OF WATER RESOURCES (IDWR)**

The Department of Water Resources has statutory responsibilities for administering the appropriation and allotment of surface and ground water resources of the state and to protect resources against waste and contamination. IDWR's role in protecting ground water quality from agricultural activities and agricultural chemicals is statutorily defined and includes the following responsibilities:

#### **WASTE DISPOSAL & UNDERGROUND INJECTION WELLS**

- Administers the Underground Injection Control (UIC) program in accordance with the Federal UIC Regulations.
- Ensures that all deep injection wells are permitted and that such permit conditions protect the ground water quality of the state.
- Ensures that all deep injection wells are under permit and that a permit condition requires protection of the ground waters of the state from all point and nonpoint sources of contamination.

- Ensures that all active deep injection wells are in compliance with permit conditions through an inspection and monitoring program. Ground water quality data acquired through monitoring will be maintained in a UIC data base which is accessible in the EDMS.
- Ensures that noncompliant deep injection wells are brought into compliance or properly decommissioned in a timely manner.
- Supervise the construction and abandonment (decommissioning) of injection wells to prevent contamination of ground waters by injection well activities resulting from agricultural and nonagricultural activities.
- Inventory shallow injection wells for compliance with IDWR rules, which is administered through agreements with district health and local government offices.
- Provide public I&E on water quality issues related to underground injection wells.

#### **WELL CONSTRUCTION AND WELL DRILLERS LICENSURE PROGRAM**

- Administer the training and licensure of well drillers operating in the state of Idaho.
- Collect, review, and maintain an inventory which is accessible to the public of Driller's Reports on each well drilled in Idaho.
- Permit and regulate the proper construction and abandonment of water wells, monitoring wells, injection wells, low temperature geothermal wells or other artificial openings and excavations in the ground which are more than 18 feet deep below land surfaces and are described as a well in the Idaho Well Construction Standards, Rules and Regulations which may provide a source of waste or contamination to ground water.
- Assist the public and well drillers with geological and technical information that will result in the proper construction of wells and the efficient development of the state's ground water resource.
- Supervises the construction or abandonment of wells which are complicated and/or is located in controversial areas.
- Designates and administers Areas of Drilling Concern to protect ground water quality and public health; Administers the Geothermal Resource Management Program.

#### **INJECTION WELLS/IRRIGATION DISPOSAL WELLS**

- Irrigation disposal wells are used in Idaho to dispose of irrigation tailwater and nonagricultural runoff water. An injection well may be utilized on an individual farm, in a hydrogeologic basin or by an irrigation district. There are a large number of injection wells in some areas of Idaho. In the Snake River Plain, which is designated a soul source aquifer, there is concern over ground water impacts due to the complexity of the irrigation induced

excess runoff water located in a variety of existing soil and ground water systems. There are documented problems and concerns with some hydrological areas, certain wells, and ground water zones that have been impacted.

- Injection wells drain excess irrigation water and runoff waters due to an area's topography (rolling terrain with depressions having internal drainage), soil (loess soils of relatively low permeability) and geology (successive flows of basalt, dense but fractured near the upper surface and frequently separated by sedimentary deposits and pyroclastic materials).

## **MONITORING AND GIS SYSTEMS**

- Conduct the Statewide Ambient Ground Water Monitoring Program in accordance with the parameters outlined in the monitoring program section of the Ground Water Quality Plan.
- Provide information, training and technical assistance on the EDMS for entities wishing to submit or receive ground water quality data.
- Produce reports, bulletins, information brochures, and other products resulting from analyses of Statewide Ground Water Quality Monitoring Programs.
- Submit ground water quality data related to agricultural activities to the Environmental Data Management System (EDMS).
- Assist in the production and distribution of an annual Idaho Ground Water Quality Contamination Report jointly with IDHW-DEQ and IDA.
- Maintain the natural Geographic Information System (GIS) for the state, as well as a comprehensive ground water data system, currently called EDMS, which is accessible to government agencies and the public.

## **GROUND WATER CHARACTERIZATION AND PLANNING**

- Conduct ground water characterization in cooperation with other appropriate agencies to generate information concerning site-specific and regional characteristics of the ground water system, including elements such as ground water recharge estimates, flow directions and gradients, and identification of lack of confining conditions.

## **WATER APPROPRIATION AND REGULATORY MANAGEMENT**

- Determine the availability of ground water and surface water for allocation to beneficial uses in the state prior to approval of a new appropriation or a proposed change of an existing water right; determine public values, including water quality issues; establish and administer ground water and Critical Ground Water Management Areas; promulgate rules for conjunctive management of surface and ground water to include consideration of ground water issues by the Water Resource Board within the Comprehensive Basin Planning process; adjudicate existing rights to use ground water.

- Conduct ground water quality characterization in cooperation with other appropriate agencies to generate information on site-specific and regional characteristics of the ground water system. The characterization should include elements such as ground water recharge estimates; ground water flow directions and gradients; and identification of the presence or lack of confining conditions.

#### **IMPLEMENTATION OF THE AGRICULTURAL GROUND WATER PROGRAM**

- Participate with IDA and other agencies in the development of a State Management Plan (SMP) for pesticides.
- Participate jointly with IDHW-DEQ, IDA, SCC, NRCS, and other appropriate agencies in the Agricultural Ground Water Quality Coordination Committee as detailed in this document.
- Participate in BMP effectiveness reviews.
- Jointly with the SCC, IDA, NRCS, SCDs, EPA, IDHW-DEQ, and CES, periodically review and update the Agricultural Ground Water Quality Protection Program, as needed.

#### **IMPLEMENTATION OF IDAHO'S GROUND WATER QUALITY PLAN**

- Jointly develop an MOU to implement the Ground Water Quality Plan with IDHW-DEQ and IDA.
- Act on recommendations of the Evaluations of Ground Water Related Programs to ensure programs are consistent with the Ground Water Quality Plan.
- Assist in the integration of the APAP including the SAWQP, the Agricultural Ground Water Quality Protection Program, and the State Management Plan (SMP) for pesticides to be consistent with the Ground Water Quality Plan.
- Participate with IDA and other agencies in the development of the State Management Plan (SMP) for pesticides.

#### **DEVELOPMENT OF COMPREHENSIVE STATE GROUND WATER PROTECTION PROGRAM**

- Work cooperatively with IDHW-DEQ and other appropriate agencies to develop a Comprehensive State Ground Water Protection Program (CSGWPP).

#### **IDAHO DEPARTMENT OF AGRICULTURE (IDA)**

IDA has obligations to prevent contamination of ground water from agricultural chemicals and agricultural activities statutorily through the Idaho Pesticide Law, the Idaho Fertilizer Law, the Idaho Chemigation Law, and the Idaho State Management Plan for pesticides.

Additional authority for IDA's role in ground water protection comes through their cooperative enforcement agreement with the EPA to enforce the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) in Idaho through joint implementation of the Idaho Ground Water Quality Plan.

Authority for IDA's role to manage dairy wastes comes from Idaho Dairy Rules (Title 37, Chapters 3, 4, 5, and 7, Idaho Code), and the Federal Pasteurized Milk Ordinance, as amended.

IDA's role in the Agricultural Ground Water Quality Protection Program is defined by the following tasks:

### **PESTICIDES AND FERTILIZER APPLICATION**

- Regulates licensing of pesticide applicators.
- Regulates the sale of pesticides and fertilizers in the state as well as monitoring use.
- Collects pesticide sales reports from dealers within the state.
- Cooperates with other agencies in the development and evaluation of Best Management Practices (BMPs) for pesticide and fertilizer use.
- Promulgates rules for pesticide and fertilizer use, establishes minimum training requirements and develops training programs jointly with CES for pesticide applicators.
- Inventory and distribution points of detected or suspected agricultural chemicals within a delineated area. Compile, catalog, and characterize this information.
- Identify potential sources and known sources of agricultural chemical contamination in cooperation with appropriate agencies.

### **CHEMIGATION PROGRAM**

- Regulates the licensing of chemigators to apply fertilizers and pesticides.
- Establishes minimum backflow prevention standards for irrigation equipment which is used for chemigation.
- Monitors and inspects chemigation systems for compliance with the Idaho Chemigation Rules.
- Develops training programs in cooperation with the CES for chemigators.

## **IMPLEMENTATION OF FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT**

- Acts as the lead agency in the development of a State Management Plan (SMP) for pesticides to address the EPA Pesticides in Ground Water Strategy.

## **NUTRIENT MANAGEMENT**

- Cooperates with industry, state and federal agencies to develop plans to address nutrient runoff and water quality impacts from confined animal feeding operations and livestock grazing.

## **GROUND WATER MONITORING/DATA MANAGEMENT SYSTEMS**

- Conduct regional and local ground water monitoring in accordance with the parameters outlined in the monitoring program section of the Ground Water Quality Plan.
- Submit ground water quality data related to agricultural activities to the Environmental Data Management System (EDMS).
- Jointly develop project management monitoring plans as required for each water quality management plan with IDHW-DEQ and other appropriate agencies.
- Assist in the production and distribution of an annual Idaho Ground Water Contamination Report jointly with IDHW-DEQ and IDWR.

## **IMPLEMENTATION OF IDAHO'S GROUND WATER QUALITY PLAN**

- Assist in the integration of the APAP including SAWQP, with the Agricultural Ground Water Quality Protection Program, the State Management Plan (SMP) for pesticides, to be consistent with the Ground Water Quality Plan.
- Act as the lead in the development of the State Management Plan (SMP) for pesticides.
- Jointly develop an MOU to implement the Ground Water Quality Plan with IDHW-DEQ and IDWR.
- Act on the recommendations of the Evaluations of Ground Water Related Programs to ensure programs are consistent with the Ground Water Quality Plan.

## **IMPLEMENTATION OF THE AGRICULTURAL GROUND WATER PROGRAM**

- Jointly with the IDHW-DEQ, NRCS, SCDs, EPA, IDWR, CES, and SCC, periodically review and update the Agricultural Ground Water Quality Protection Program, as needed.

- Participate jointly with IDHW-DEQ, IDWR, SCC, NRCS, and other appropriate agencies in the Agricultural Ground Water Quality Coordination Committee as detailed in this document.
- Work with state and federal agencies, user and interest groups to implement the Agricultural Ground Water Quality Protection Program.
- Participate in BMP effectiveness reviews.

#### **DEVELOPMENT OF COMPREHENSIVE STATE GROUND WATER PROTECTION PROGRAM**

- Works cooperatively with IDHW-DEQ and other appropriate agencies to develop a Comprehensive State Ground Water Protection Program (CSGWPP).

In addition to the roles listed above, other state and federal agencies participate in agricultural ground water program responsibilities. These roles are discussed in Appendix B, Agricultural Ground Water Quality Programs.

## PROGRAM INTERACTIONS

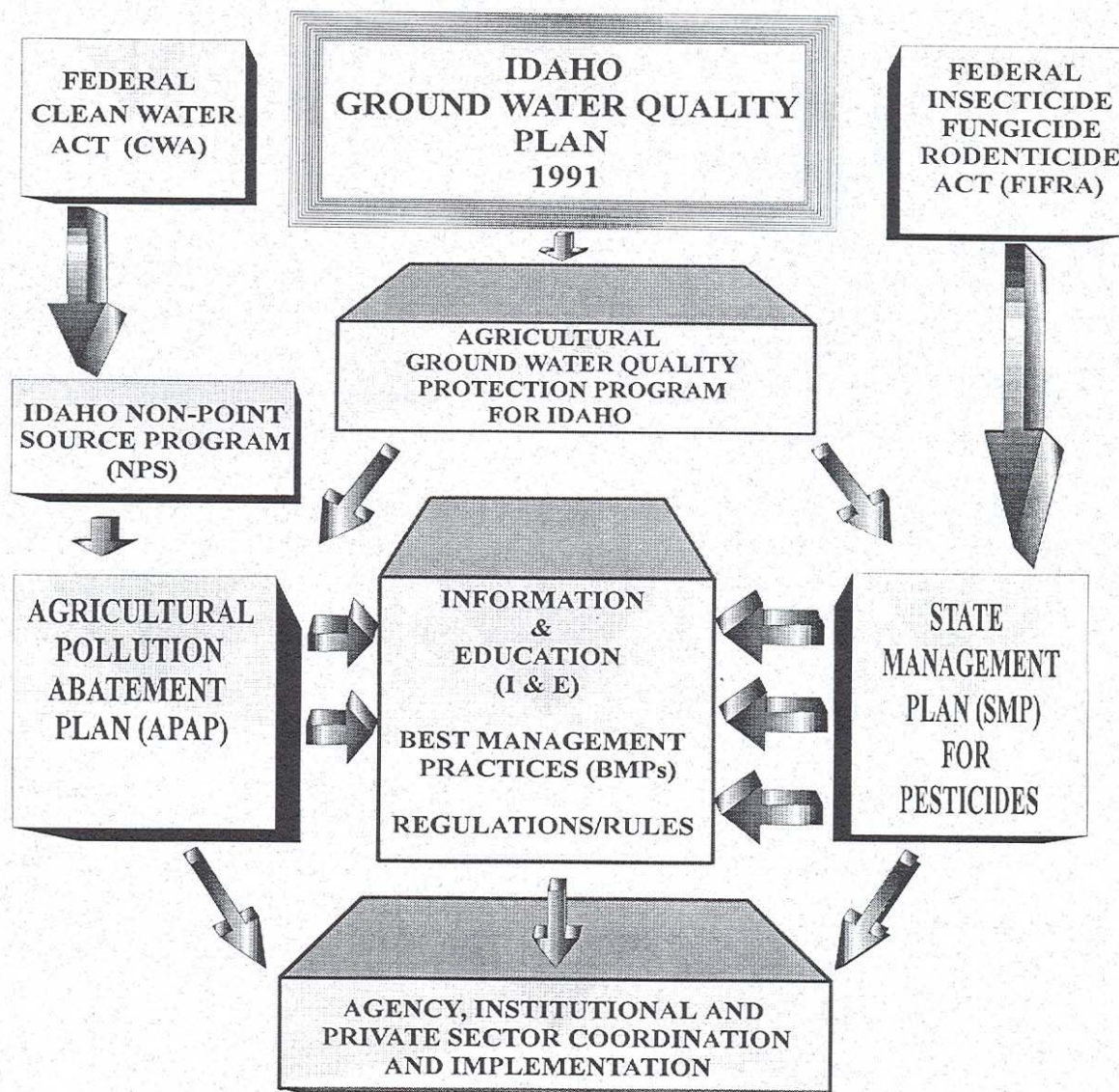
The Idaho Nonpoint Source Management Program, Agricultural Pollution Abatement Plan (APAP), and State Management Plan (SMP) for pesticides are the major programs that support this Agricultural Ground Water Quality Protection Program. While each of these programs vary in scope and responsibility, collectively they produce a unified effort to prevent ground water contamination from the impacts of agricultural activities and chemicals. The relationship of these programs to the Idaho Ground Water Quality Plan is depicted schematically in Figure 5.

Agricultural ground water protection strategies are best achieved through interagency involvement and expansion of existing programs. Specifically, the coordination of agricultural I&E delivery programs is through the Cooperative Extension System. the SAWQP and the USDA resource management programs provide technical and financial resources for I&E and implementation of BMPs through development of area-wide and site-specific water quality management plans. The APAP is the source for approved BMPs, and provides mechanisms for their development and improvement. The SMP provides mechanisms for restricting use and application of certain leachable pesticides and may also require implementation of BMPs in response to contamination.

Detailed discussions of the above programs along with other agricultural related state and federal programs involved in the protection of Idaho's ground water are found in Appendix B, Agricultural Ground Water Quality Programs.



## SCHEMATIC OF MAJOR RELATED DOCUMENTS, PROGRAMS, AND ACTIVITIES



**Figure 5.** The Idaho Ground Water Quality Protection Plan and the Agricultural Ground Water Quality Protection Program for Idaho are to be utilized in conjunction with other regulatory, planning, and implementation processes in the state of Idaho. Information and education, best management practices, and regulations are to be used in a coordinated manner for achieving the greatest effectiveness and benefit.

## **APPENDICES**

- A. Agricultural Chemical Source Matrix**
- B. Agricultural Ground Water Programs**
- C. Ground Water Quality Council Responses to Public Comments**

**AG. CHEM. SOURCE MATRIX TABLE 1**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/RULES
<p>1. AGRICULTURAL CHEMICAL STORAGE AND HANDLING</p> <p>(any site or facility upon which ag chemicals are being stored which may include commercial, on-farm, residential locales)</p>	<p>1. FIFRA; label requirements. EPA, IDA.</p> <p>2. Idaho state pesticide use regulations/rules. (Section 15) IDA.</p> <p>3. Local fire codes and building ordinances, state and local Fire Marshall.</p> <p>4. Recommended guidelines presented in federal and state documents, agricultural journals and from the agrichemical industry.</p> <p>5. UST regulations. EPA, DEQ.</p> <p>6. Drinking Water Standards for community and non-community water supply wells. EPA, DEQ, IDWR.</p> <p>7. RCRA; contaminated soils from commercial applicator storage related spills. EPA, IDA, DEQ.</p>	<p>1. Develop Information and Education dissemination programs at all levels. NRCS, University of Idaho, CES, DEQ, IDA, Industry, IDWR. Policy II-B.</p> <p>2. Expand wellhead protection. IDA, DEQ, Local EPA, IDWR. Policy II-B.</p> <p>3. Development of a State Management Plan (SMP) for pesticides. IDA lead. Policy II-B.</p>	<p>1. Development of a State Management Plan (SMP) for pesticides. IDA lead. Policy II-B.</p>	<p>1. Evaluate existing information and develop standardized guidelines. IDA, Ground Water Review Team (GWR). Policy II-B.</p> <p>2. Broaden scope of applicability Section 15 rules. IDA. Policy II-B.</p> <p>3. Develop state rules for containment measures including SPCC plans at larger facilities. IERC.</p> <p>4. Develop standardized guidelines for containment design. IDA. Policy II-B.</p> <p>5. EPA to finalize storage regulations (CFR Part 165). EPA. Policy II-B.</p> <p>7. Expand wellhead protection. IDA, DEQ, local EPA, IDWR. Policy II-B.</p> <p>8. Development of a State Management Plan (SMP) for pesticides. IDA lead. Policy II-B.</p> <p>9. Coordinate siting of agricultural chemical storage facilities with local planning and zoning entities. IDA, DEQ, EPA. Policy II-B.2.</p>

**AG. CHEM. SOURCE MATRIX TABLE 2**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
	INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/RULES
<p>2. AGRICULTURAL CHEMICAL MIXING AND LOADING FOR APPLICATION</p> <p>(includes both permanent and occasionally used sites where ag chemicals are prepared for application; includes commercial and on-farm locales)</p>	<p>1. Develop educational and informational programs at all levels. NRCS, University of Idaho, CES, DEQ, IDA, industry. Policy II-B.</p> <p>2. Expand well head protection at all levels. DEQ, IDA, local EPA, IDWR. Policy II-A.7. Development of SMP. IDA lead. Policy II-B.</p>		<p>1. Evaluate existing information and develop standardized guidelines. IDA, ground water team. Policy II-B.</p> <p>2. Develop state rules/guidelines for proper mixing and loading procedures. IDA, EPA, industry, University of Idaho. Policy II-B.</p> <p>3. Develop design standards for mixing and loading areas (i.e., containment, impervious pads, closed mixing). IDA, industry, EPA, DEQ. Policy II-B.</p> <p>4. EPA to finalize mixing and loading regulations. (CFR Part 165) EPA. Policy II-B.</p> <p>5. Expand well head protection at all levels. DEQ, IDA, local EPA, IDWR. Policy II-A.7. Development of SMP. IDA lead. Policy II-B.</p>

**AG. CHEM. SOURCE MATRIX TABLE 3**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/ RULES
<p>3. AGRICULTURAL CHEMICAL APPLICATION/ AGRICULTURAL PRACTICES</p> <p>(application methods, rates and timing of agricultural chemicals and associated cultural practices such as crop rotation, tillage, and irrigation which influence concentrations and mobility of applied agricultural chemicals)</p>	<ol style="list-style-type: none"> <li>1. BMPs, NRCS; Pesticide, Nutrient and Irrigation Water Management Plans, Conservation Cropping Practice. SCC lead and Technical Committee.</li> <li>2. NRCS, University of Idaho, CES, and Bureau of Reclamation Irrigation Management Guidelines.</li> <li>3. Recommended guidelines presented in federal and state documents, agricultural journals, and from the agrichemical industry.</li> <li>4. FIFRA; labeling requirements, cultural practices restrictions (i.e., tillage). EPA, IDA, University of Idaho.</li> <li>5. IDA; Chapter 34, Pesticide Law, Chapter 6, Fertilizer Law. IDA.</li> <li>6. 1990 Farm Bill Water Quality Plan Provisions. USDA, University of Idaho, DEQ, IDA, EPA, SCD.</li> <li>7. IDWR – Well Construction Standards, well driller licensing.</li> <li>8. IDWR – Water Rights Season of Diversion.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop and implement an SMP. IDA, DEQ, EPA. Policy II-B.</li> <li>2. Develop informational, educational and research programs (especially promote development and distribution of ground water protection handbooks: Pesticide, Nutrient and Irrigation Management) which address ground water protection from agricultural chemical spills. All entities. Policy II-B.</li> <li>3. Encourage land user participation in SCD and other local programs that may provide BMP planning, implementation and technical assistance. All entities. Policy II-B.</li> <li>4. Encourage expansion and continuation of privately (i.e., Farm Bureau) and publicly sponsored ground water quality programs including pesticide use information, vulnerability mapping and others. All entities. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop a cooperative agreement between local Soil Conservation Districts and an operator. This will provide for developing a water quality management plan that addresses surface water and ground water pollution sources, and satisfies all applicable state and federal requirements for water quality protection. This includes the implementation of BMPs. Local SCDs. Policy II-B.</li> <li>2. Develop and update groundwater quality protection BMPs for agricultural chemical application/cultural practices. SCD lead and technical committee. Policy II-B.</li> <li>3. Coordinate irrigation programs and other BMPs within CES, NRCS, Bureau of Reclamation, IDWR. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop and implement a SMP. IDA, DEQ, EPA. Policy II-B.</li> </ol>

AG. CHEM. SOURCE MATRIX TABLE 4

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/RULES
4. CAFOs  (NPDES permitted and nonpermitted confined animal feeding operations of all sizes and all animals excluding aquaculture[i.e., dairies, feedlots, hog operations, etc.] )	<ol style="list-style-type: none"> <li>1. EPA; NPDES Permit, inspection. EPA, DEQ. Dairies - IDA.</li> <li>2. Idaho Waste Management Guidelines for Confined Animal Feeding Operations. DEQ, technical advisory committee.</li> <li>3. Rules; compliance checks and complaint response relating to Idaho Water Quality Standards. DEQ.</li> <li>4. Technical assistance for waste management system evaluation and design. FSA, NRCS, SCD.</li> <li>5. Financial/cost share assistance for implementation. FSA, NRCS-RCD, SAWQP.</li> </ol>	<ol style="list-style-type: none"> <li>1. SCDs should include an inventory of statewide CAFO operations in their five year program. SCD. Policy II-B.</li> <li>2. Develop informational and educational programs for groundwater protection from CAFOs at all levels. Policy II-B.</li> <li>3. U of I Extension.</li> <li>4. Idaho Department of Agriculture.</li> </ol>	<ol style="list-style-type: none"> <li>1. Establish a monitoring and research program to determine the degree of CAFO impacts on groundwater quality. CES/DEQ, IWRRI. Policy II-B.</li> <li>2. Research to identify alternative methods of waste treatment and management. University of Idaho, NRCS, DEQ, industry. Policy II-B.</li> <li>3. Provide additional personnel for technical assistance to design and implement CAFO waste management systems. NRCS, DEQ, IDA. Policy II-B.</li> <li>4. Provide financial/cost share assistance for implementation of CAFO waste management systems. FSA, NRCS-RCD, SAWQP. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>1. Provide additional personnel for technical assistance to design and implement CAFO waste management systems. NRCS, DEQ, IDA. Policy II-B.</li> <li>2. Provide financial/cost share assistance for implementation of CAFO waste management systems. FSA, NRCS-RCD, SAWQP. Policy II-B.</li> <li>3. Address the ground water quality protection shortcomings of the NPDES permit. DEQ, EPA. Policy II-B.</li> <li>4. Expand and promote Idaho Waste Management Guidelines for CAFOs to address ground water quality protection. DEQ lead. Policy II-B.</li> </ol>

**AG. CHEM. SOURCE MATRIX TABLE 4**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/RULES
4. CAFOs  (NPDES permitted and nonpermitted confined animal feeding operations of all sizes and all animals excluding aquaculture[i.e., dairies, feedlots, hog operations, etc.] )	6. IDA rules governing Grade A Pasteurized Milk Program. IDA - Dairy Bureau. 7. IDA dairy laws for Grade B Operations - IDA Dairy Bureau, NRCS, CES, private consultants, DEQ. 8. IDWR water right permitting. 9. MOU with EPA, DEQ, IDA and Idaho Dairymans Association. 10. IDA Dairy Waste Management Inspections Program.		5. Coordinate requirements of all agencies into CAFO management systems. SCC. Policy II-B. 6. Expand and promote Idaho waste management guidelines for CAFOs to address ground and surface water quality protection. IDA lead. Policy II-B.	5. Expand and promote Idaho Waste Management Guidelines for CAFOs to address ground water quality protection. DEQ. Policy II-B. 6. Surface and ground water protection through adoption of Idaho Waste Management Guidelines as rules for Idaho Dairy Farms - IDA. IDAPA 02.04.14 and Idaho Code 37, Chapter 4, March 6, 1992.

**AG. CHEM. SOURCE MATRIX TABLE 5**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/RULES
<p>5. AGRICULTURAL CHEMICAL WASTE DISPOSAL</p> <p>(Containers and unused product)</p> <p>(all commercial, on-site farm, residential entities using agricultural chemicals)</p>	<p>Containers:</p> <ol style="list-style-type: none"> <li>1. FIFRA label requirements. IDA, EPA.</li> <li>2. CES, EPA recommended practices. CES, IDA, DEQ.</li> <li>3. DEQ rules, small generator/hazardous materials rules. District health, local governments.</li> <li>4. Household hazardous materials collection programs. DEQ, HMB, local government, industry.</li> </ol> <p>Unused Product:</p> <ol style="list-style-type: none"> <li>1. RCRA; disposal of hazardous wastes which apply to agricultural chemicals and unrinsed containers. DEQ/HMB, EPA.</li> <li>2. FIFRA label requirements. IDA, EPA.</li> <li>3. State authority for IDA to develop rules (Chapter 34). IDA.</li> <li>4. Idaho's rules and regulations, construction and use of injection wells. IDWR, EPA.</li> </ol>	<ol style="list-style-type: none"> <li>1. Promote informational and educational programs to address proper disposal of agricultural chemical containers and unused product. At all levels. Policy II-B.</li> <li>2. Development of an SMP. IDA lead. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>1. Development of an SMP. IDA lead. Policy II-B.</li> <li>2. Waste Pesticide Disposal Program, IDA lead.</li> </ol>	<ol style="list-style-type: none"> <li>1. Evaluate effectiveness of existing programs/rules for ground water quality protection by appropriate agencies/industry. Ground water review team. Policy II-B.</li> <li>2. EPA to finalize disposal regulations (CFR Part 165). EPA. Policy II-B.</li> <li>3. Development of an SMP. IDA lead. Policy II-B.</li> </ol>



**AG. CHEM. SOURCE MATRIX TABLE 6**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/ RULES
<p>6. AQUACULTURE WASTE MANAGEMENT PRACTICES</p> <p>(storage and handling of waste generated from the controlled cultivation of aquatic plants and animals)</p>	<ol style="list-style-type: none"> <li>1. EPA, NPDES permit, inspection. EPA, DEQ.</li> <li>2. Technical assistance with facility design and operations from Idaho Aquaculture Association, trade representative, and publications. Industry.</li> <li>3. Idaho Wastewater Treatment Requirements. DEQ.</li> <li>4. BMPs; system management.</li> <li>5. Public interest criteria of water rights. IDWR.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop educational and informational programs for aquaculture waste management practices at all levels. Policy II-B.</li> <li>2. Develop informational and educational programs for ground water protection from aquaculture practices. All levels. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>1. Development design standards for waste storage ponds/lagoons. DEQ, NRCS, IDA. Policy II-B.</li> <li>2. Promote research to identify alternative methods of waste treatment and management. University of Idaho, DEQ, SCS, industry. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>1. Development design standards for waste storage ponds/lagoons. DEQ, NRCS, IDA. Policy II-B.</li> <li>2. Address the ground water quality protection shortcomings of the NPDES permit. DEQ, EPA. Policy II-B.</li> <li>3. Evaluate appropriateness of modifying the Idaho water quality storage and wastewater treatment requirements. DEQ lead. Policy II-B.</li> </ol>

AG. CHEM. SOURCE MATRIX TABLE 7

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/RULES
<p>7. INJECTION WELLS AND OTHER UNDER-GROUND DISPOSAL METHODS</p> <p>(wells or other methods used to dispose of irrigation tail water and other runoff water in which discharge is directly into the ground water or will likely migrate to the ground water)</p>	<ol style="list-style-type: none"> <li>Underground Injection Control (UIC) Program; exercises primacy that EPA granted Idaho in 1984 under the SDWA to regulate underground injection. IDWR, EPA.</li> <li>Idaho's rules and regulations, construction and use of injection wells. IDWR, EPA.</li> <li>Idaho's well abandonment and well construction standards. IDWR, EPA.</li> <li>Operation Outreach; a program to educate injection well users, government officials and the public of alternatives to injection wells, as well as mitigation measures and proper abandonment procedures. IDWR, EPA.</li> </ol>	<ol style="list-style-type: none"> <li>Continue to improve educational and informational efforts. IDWR, EPA. Policy II-B.</li> <li>Develop guidelines and/or regulations for disposal systems that are not regulated under existing Policy II-B.</li> <li>Encourage land user participation in SCD and other local programs that may provide BMP planning, implementation, and technical assistance. SCD. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>Promote, develop and revise BMPs in regard to increasing water quality and decreasing water quantity of irrigation tail water and other runoff water entering injection wells and other disposal systems. SCC technical committee. Policy II-B.</li> <li>Ascertain the effect of injection well use on ground water quality by obtaining support for research to determine the fate of contaminants entering the subsurface environment through injection wells. IDWR, University of Idaho, IFBF. Policy II-B.</li> <li>Encourage land user participation in SCD and other local programs that may provide BMP planning, implementation, and technical assistance. SCD. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>Identify contributors responsible for low water quality injectate and require that they share responsibility with owner/ operator when more than one person, party, or entity utilizes an injection well. IDWR. Policy II-B.</li> <li>Develop guidelines for disposal systems that are not regulated under existing Policy II-B.</li> <li>Evaluate and revise rules as necessary to provide increased protection from injection wells and other disposal methods; strengthen compliance monitoring and enforcement efforts by obtaining support for increased well inspections, more detailed injectate characterization, emergency response capability, and penalties or well closure. IDWR, EPA.</li> </ol>

**AG. CHEM. SOURCE MATRIX TABLE 8**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/ RULES
<p>8. AGRICULTURAL CHEMICAL SPILLS</p> <p>(uncontained releases that occur during storage, handling, mixing, loading and transportation of agricultural chemicals)</p>	<ol style="list-style-type: none"> <li>1. Idaho hazardous materials incident command and response support plan. IERC.</li> <li>2. SARA, Title III. IERC.</li> <li>3. FIFRA; packaging. EPA.</li> <li>4. DOT; transportation requirements. DOT, IT.</li> <li>5. RCRA; contaminated media from commercial spills/leaks. DEQ, HMB, EPA.</li> <li>6. Recently passed legislation addressing agricultural chemical spills.</li> <li>7. Recommended guidelines presented in federal and state documents, agricultural journals and from the agrichemical industry.</li> <li>8. IDWR well construction and injection well program (UIC).</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop guidelines for those agricultural chemicals and quantities that are not regulated under existing programs. IDA, IT. Policy II-B.</li> <li>2. Encourage beneficial uses of spilled material. IDA, DEQ/HMB. Policy II-B.</li> <li>3. Develop informational, educational and research programs which address ground water protection from agricultural chemical spills. All levels. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>1. Encourage beneficial uses of spilled material. IDA, DEQ/HMB. Policy II-B.</li> <li>2. Develop informational, educational, and research programs which address groundwater protection from agricultural chemical spills. All levels. Policy II-B.</li> <li>3. Encourage the utilization of pertinent research results. All levels. Policy II-B.</li> <li>4. Upgrade IDWR programs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop guidelines for those agricultural chemicals and quantities that are not regulated under existing programs. IDA, IT. Policy II-B.</li> <li>2. Upgrade IDWR programs.</li> </ol>

**AG. CHEM. SOURCE MATRIX TABLE 9**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/RULES
<p>9. URBAN/NON-AGRICULTURAL USES</p> <p>(roadside weed control, right-of-ways, golf courses, residential, commercial, etc.)</p>	<ol style="list-style-type: none"> <li>1. FIFRA; labeling. IDA; EPA.</li> <li>2. IDA; Chapter 34, pesticide law (professional applicators).</li> <li>3. Recommended guidelines presented in federal and state documents, agricultural journals, and from the agrichemical industry.</li> <li>4. Community awareness programs. IDA, CES, industry.</li> </ol>	<ol style="list-style-type: none"> <li>1. Research studies to determine degree of ground water contamination in urban areas. DEQ, IDA. Policy II-B.</li> <li>2. Develop informational, educational, and training programs for commercial and residential users. All entities. Policy II-B.</li> <li>3. Conduct urban pesticide sales study. IDA. Policy II-B.</li> <li>4. Increased development of outreach programs for information and education. CES, IDA, EPA. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>1. Research studies to identify alternative methods of urban and nonagricultural uses of agricultural chemicals. CES, industry, EPA. Policy II-B.</li> </ol>	

**AG. CHEM. SOURCE MATRIX TABLE 10**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS
<p>10. LAND APPLIED WASTE AND WASTEWATER</p> <p>(all waste management operations which employ land application for the benefit of crop production.[i.e., aquaculture waste, sludge and septage, animal waste, plant byproducts, etc.]</p>	<ol style="list-style-type: none"> <li>1. EPA; NPDES permit. EPA, DEQ.</li> <li>2. Idaho Water Quality Standards and Wastewater Treatment Requirements. DEQ, Technical Advisory Committee.</li> <li>3. Idaho Wastewater Land Application Permit Rules. DEQ.</li> <li>4. USDA NRCS Agricultural Waste Mgt. FOTG. USDA, NRCS.</li> <li>5. IDWR water right permit requirements.</li> </ol>	<ol style="list-style-type: none"> <li>1. Expand guidance, rules for land application of waste and wastewater management from processing plants, CAFOs and aquaculture operations and other nonregulated land application activities to protect groundwater quality. DEQ, EPA, IDA. Policy II-B.</li> <li>2. Develop informational and educational programs for ground water quality protection from land applied waste and wastewater. All levels. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>1. Refine BMPs. SCC technical committee. Policy II-B.</li> <li>2. Research to identify alternative methods of land application. CES, DEQ, IDA. Policy II-B.</li> </ol>	<ol style="list-style-type: none"> <li>1. Expand guidance, rules for land application of waste and wastewater management from processing plants, CAFOs and aquaculture operations and other nonregulated land application activities to protect groundwater quality. DEQ, EPA, IDA. Policy II-B.</li> <li>2. Develop an MOU between appropriate federal/state/local agencies regarding agency roles and responsibilities for land applied waste and wastewater. Policy II-B.</li> <li>3. Address the groundwater quality protection shortcomings of the NPDES Permit. DEQ, EPA. Policy II-B.</li> </ol>

**AG. CHEM. SOURCE MATRIX TABLE 11**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/RULES
<p>11. AGRICULTURAL WASTES DISPOSAL</p> <p>(agricultural wastes not addressed in the Agricultural Chemical Waste Disposal, Injection Wells and Other Disposal Methods, and Land Applied Waste and Wastewater categories; for example, treated seed, animal carcasses and crop residue)</p>	<p>1. IDHW Idaho State Solid Waste Rules. DEQ/HMB, local government.</p> <p>2. RCRA, Subtitle D. DEQ/HMB, EPA.</p> <p>3. Guidelines/BMPs. IDA.</p> <p>4. UIC permits and rules, IDWR.</p>	<p>1. Develop educational and informational programs which address proper disposal of agricultural wastes. CES, IDA. Policy II-B.</p> <p>2. Expand and develop guidelines for groundwater quality protection from agricultural wastes. DEQ, IDA, CES. Policy II-B.</p>	<p>1. Evaluate effectiveness of existing programs for groundwater quality protection by appropriate agencies/industry. IDA, DEQ, CES, EPA. Policy II-B.</p>	<p>1. Expand and develop guidelines for groundwater quality protection from agricultural wastes. DEQ, IDA, CES. Policy II-B.</p>

**AG. CHEM. SOURCE MATRIX TABLE 12**

POTENTIAL AGRICULTURAL CHEMICAL SOURCE	EXISTING PROGRAMS PERTINENT TO SOURCE	RECOMMENDATIONS TO ADDRESS PROGRAM DEFICIENCIES/AGRICULTURAL CHEMICALS POLICY NUMBER		
		INFORMATION AND EDUCATION	BEST MANAGEMENT PRACTICES (BMPs)	REGULATIONS/RULES
12. WELL CONSTRUCTION AND ABANDONMENT	<ol style="list-style-type: none"> <li>1. Idaho Code and IDWR rules governing well construction standards. IDWR.</li> <li>2. Idaho Code and IDWR Rules governing water well driller's licenses. IDWR.</li> <li>3. IDHW rules for individual subsurface sewage disposal systems. IDHW.</li> <li>4. IDHW Drinking Water Rules for public systems. DEQ.</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase support for education of IDWR regulatory personnel. IDWR. Policy II-B.</li> <li>2. Expand public and driller awareness and cooperation through increased communication with IDWR ground water personnel. IDWR. Policy II-B.</li> </ol>		<ol style="list-style-type: none"> <li>1. Update IDWR Rules to better address water mixing between aquifers and siting of wells near potential contamination sources. IDWR. Policy II-B.</li> <li>2. Increase support for field inspections for well construction and locating improperly abandoned wells. IDWR. Policy II-B.</li> </ol>

## **APPENDIX B**

### **EXISTING AGRICULTURAL GROUND WATER PROGRAMS MARCH 1993**

Many specific and commonly related programs exist for the management of agricultural chemical sources or activities. An important implementation mechanism is to fully utilize and coordinate the various existing programs.

The Agricultural Chemical Matrix (Appendix A, Table 1) presents a preliminary assessment of the existing programs for each of the matrix items. Each assessment contains information related to the various regulatory authorities and the various agencies, institutions, and private sector groups that are involved with each program.

The existing agricultural ground water programs are as follows:

#### **1. EPA Pesticides In Ground Water**

Five different statutes administered by the Environmental Protection Agency (EPA) include some provisions for the protection of ground water, including the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). However, the primary legislation which deals with the regulation of pesticides is the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). EPA focuses on the use of FIFRA authorities to address concerns on pesticide contamination of underground aquifers.

The goal of the FIFRA pesticide strategy is to prevent contamination of ground water resources that would cause unreasonable risk to human health and the environment resulting from the normal, registered use of pesticides by taking appropriate actions where such risks may occur.

Under FIFRA, EPA's main role is determining the appropriate regulatory approach for individual chemicals that may threaten ground water. This entails:

- Determine the chemical's potential for leaching into ground waters.
- Determining whether national label restrictions will adequately address leaching concerns.
- In setting national restrictions for chemicals found leaching into ground water, the EPA will take into account appropriate state and local measures to limit leaching.
- Determining whether additional training required by restricted use classification for the pesticide will provide adequate protection, and if not;



- Determining whether providing states with the opportunity to develop a State Management Plan (SMP) for pesticides for the chemical will effectively address the contamination risk.

There may be some pesticides which pose such significant risks to health or the environment due to ground water leaching that a SMP will not be adequate to prevent risks. In these cases, EPA would resort to national cancellation. All of the regulatory decisions cited above, including SMPs, entail a risk-benefit determination, pursuant to the FIFRA definition of “unreasonable risk to man and the environment.”

EPA recognizes that ground water contamination by pesticides can also result from leaks or spills associated with storage, mixing and loading or disposal of these chemicals. To address such “point source” causes of contamination, EPA is developing new regulations under FIFRA to deal with practices associated with storage, mixing and loading, and disposal of pesticide products, as well as with the design of pesticide product containers.

## **2. State Management Plan (SMP) for Pesticides**

EPA’s Pesticides and Ground Water Strategy was developed to describe the policy framework in which the EPA intends to address risks of ground water contamination by pesticide chemicals. The need for such a policy initiative emanated from the detection of various pesticides in a number of ground water systems within the United States and the potential risks to human health and the environment.

The general goal of the Ground Water Strategy is to manage the use of pesticides in order to prevent such adverse effects and to protect the environmental integrity of the nation’s ground water resources. The Pesticides and Ground Water Strategy emphasizes prevention of ground water risks by managing pesticide use in a way that reduces or eliminates the leaching of pesticides to ground water, particularly in vulnerable areas.

The focus of the CSGWPP guidance is the development and implementation of State Management Plan (SMP) for pesticides. The Idaho Department of Agriculture is designated as the lead agency to develop the State Management Plan (SMP) for pesticides. The development and implementation of the SMP will be consistent with the goals and policies established under the Idaho Ground Water Quality Plan and will include the cooperation of other state and federal agencies.

The SMP may be developed by states as a generic SMP or as a chemical specific SMP which will be required for certain EPA identified pesticides which may pose a threat to ground water.

Under the strategy, the use of pesticides which are determined by EPA to “generally pose unreasonable effects to the environment” due to ground water leaching will be restricted to those states which develop chemical specific SMPs. If the EPA determines that a SMP is necessary for a particular pesticide, its legal sale and use would be restricted to states with an approved SMP. Chemical specific SMPs would apply as a label requirement during the pesticide registration process.

There may be some pesticides which pose such significant risks to health or the environment due to ground water leaching that SMPs will not be adequate to prevent risks. In these cases, EPA would resort to national cancellation of the pesticide.

The generic SMPs will address the following twelve components:

- Statement of philosophy.
- Agency roles and responsibilities.
- Legal authority.
- Enforcement mechanisms.
- Resources.
- Basis for assessment and planning.
- Ground water contamination preventative measures.
- Information dissemination.
- Monitoring.
- Actions in response to ground water contamination.
- Public awareness and participation.
- Records/reporting progress.

The generic SMP includes a wide variety of preventative and response measures including user education, additional monitoring requirements, use restrictions or prohibitions, and agricultural BMPs which may include changes in pesticide application rates or timing.

The generic and chemical specific SMP will focus on areas of the state that are vulnerable to ground water contamination. For the chemical specific SMP, the state will consider the vulnerability of the area in which a specific pesticide is used. The state must develop one of three types of chemical specific SMPs: baseline, moderate, or full scale SMP.

A baseline SMP reflects a determination that the pesticide's use poses a minimal risk of contamination throughout the state because of lack of use or low aquifer sensitivity. For example, the baseline SMP would be appropriate for states which show outdoor uses of chemical only in areas of low sensitivity (or no outdoor use). Six of the twelve components must be addressed for the baseline level type SMP. However, the state would commit to move to a higher level SMP if the situation changes or new evidence warrants such action.

A moderate level SMP represents a state's acknowledgement of the potential for ground water contamination by the pesticide in question. A moderate level SMP would be initiated in those states where the chemical's use is confined to areas of low and moderate aquifer sensitivity. Eight of the twelve components must be addressed in this level of SMP.

The full scale SMP will entail addressing all twelve of the required program components in sufficient detail so as to attain the ultimate objective of preventing ground water contamination. The

level of a SMP will be appropriate for a state with a significant level of risk, as indicated by all relevant factors, including site-specific hydrologic characteristics and patterns of chemical use within a state.

While EPA can only require SMPs through a chemical-specific regulatory action, they are encouraging states to take the initiative to voluntarily develop “generic” SMPs which would then form the basis of the state’s chemical-specific SMPs. A generic SMP addresses all of the twelve elements of a pesticide specific full SMP, but in less detail. The EPA is encouraging states to include in their generic SMP non-regulatory approaches to ground water protection such as: the development of safer chemical and nonchemical pest control alternatives, the adoption of integrated pest management strategies, and other practices that reduce the potential for pesticide residues to be introduced into ground water.

### **3. Clean Water Act (CWA) and Idaho’s Nonpoint Source Management Plan**

The Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act) and its subsequent amendments constitute the national water quality policy for the United States of America. This federal mandate is based on the concept that water pollution is controlled by managing effluent quality rather than receiving water quality. The Clean Water Act (CWA) provisions emphasize funding and implementation of preventive pollution control mechanisms through point source effluent treatment and nonpoint source management and planning programs.

Section 319 of the CWA directs states to inventory waters within their jurisdiction that fail to meet water quality standards because of nonpoint source pollution. States then develop a nonpoint source management plan and schedule for controlling nonpoint source pollution. The plan describes the process for identifying BMPs and implementation programs including research, planning, assessments, enforcement, technical assistance, education, and training to protect ground water quality from nonpoint sources of pollution.

Idaho’s Nonpoint Source Management Plan was approved by EPA in December 1989. The process for identifying BMPs for agricultural nonpoint source pollution was developed through the establishment of the Idaho Agricultural Pollution Abatement Plan (APAP), last revised in 1991. The primary implementation mechanism for BMPs approved by the APAP occurs through the Idaho State Agricultural Water Quality Cost Share Program (SAWQP).

### **4. Agricultural Pollution Abatement Plan (APAP)**

The initial stage of the Idaho Agricultural Pollution Abatement Plan (APAP) was in 1979, with Governor Evans’ certification of the “Ag Plan” or agricultural portion of the Statewide Water Quality Management Plan.

The APAP identified areas where water quality impacts could result from agricultural activities, described the agencies responsible for addressing those water quality impacts, identified BMPs

needed to reduce water quality impacts, and presented recommendations related to changes needed to reduce agricultural nonpoint source pollution. These recommendations focused on a voluntary program recognizing the need for adequate technical assistance to farmers and ranchers to identify problems and solutions, the need for adequate Information and Education activities to raise awareness of agricultural pollution problems and make solutions available, and the need for adequate incentives for BMP installation to offset costs of pollution control which benefits the public as well as the agricultural operator.

The 1991 revision of the Agricultural Plan is consistent with and meets the goals of the Idaho Nonpoint Source Management Program (1989) and meets the requirements of Section 319 of the Federal Clean Water Act. The NPS Management Program identified a number of impacts resulting from agricultural uses which were not adequately addressed in the Agricultural Plan. Those impacts included a need for increased emphasis on livestock grazing/riparian management, non-permitted livestock confinement areas, agricultural chemical management, ground water protection and wetlands. The state also adopted an Anti-Degradation Policy and passed the Idaho Ground Water Quality Protection Act which the Agricultural Plan needed to address and be compatible.

The objectives for the 1991 Agricultural Plan focus on the requirements of the Federal Clean Water Act “to restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” The goal in Idaho is to restore and maintain the State’s waters impacted by agricultural nonpoint sources to fully protect identified beneficial uses of the state’s waters.

Individual agricultural landowners and operators are working in cooperation with numerous governmental entities and organizations to achieve that goal. There are 29 governmental entities (16 federal, 9 state and 4 local) involved in agricultural pollution control in Idaho. The state’s 51 Soil Conservation Districts (SCDs) are the localized lead groups, each with locally elected supervisors who serve voluntarily. The SCDs with the Idaho Soil Conservation Commission (SCC) to carry out their water quality activities.

The Idaho Department of Health and Welfare, Division of Environmental Quality (DEQ) is the lead state water quality management agency. Federal agencies intensively involved in the program include the United States Forest Service (USFS) and United States Bureau of Land Management (BLM) which are the designated management agencies for federal lands within the state under Section 208 of the Federal Clean Water Act. Coordinated Resource Management Plans (CRMPs) provide an effective way of reducing pollution on lands with mixed ownership.

In order to determine where to direct efforts to reduce agricultural nonpoint source pollution, priorities are set. The local SCDs set priorities in each district by incorporating stream segments, lakes, aquifers and wetlands impacted by agricultural activities into their five year programs.

To reduce and prevent pollution, agricultural operators install and maintain BMPs. In order to be acceptable in Idaho, BMPs have to be feasible, both technically and economically, and also socially acceptable.

A BMP Technical Committee composed of representatives from technical agencies review, evaluate and recommend component practices to be used to develop agricultural BMPs. Monitoring and evaluation are critical to determining the effectiveness of agricultural pollution control. The BMP Feedback Loop is an integral part of the process (Figure 4, page 80).

## **5. State Agricultural Water Quality Program (SAWQP)**

The Idaho State Agricultural Water Quality Program (SAWQP) is the state planning and implementation program of choice for assisting agricultural operators installing BMPs on private lands. The 1980 Legislature authorized SAWQP with funding from the Water Pollution Control Account. The legal authority was granted to the Idaho State Board of Health and Welfare, Division of Environmental Quality (DEQ) under Sections 39-105 (2) and 39-601 of Idaho Code to adopt the rules for the administration of the program.

SAWQP assists the SCDs in the control and abatement of contamination resulting from agricultural activities. The program provides technical assistance and funding for water quality planning and BMP implementation projects. The BMPs and component practices used in SAWQP cost share contracts are listed in the APAP.

Planning projects begin by a SCD applying for a planning grant to characterize the water resources within its boundaries. Planning projects are initiated by SCDs based on listing and priority of water quality conditions according to the APAP. If funding is awarded, the district coordinates an interagency, interdisciplinary effort to investigate the resource concerns.

The projects generally entail two to three years of investigation. A report detailing the documented water quality impacts related to agricultural nonpoint source pollution is prepared. The report contains recommendations for selected treatment alternatives.

If a planning report indicates that significant water quality problems exist and viable treatment alternatives are available, the district can request funding from SAWQP to implement a treatment plan. Funding is available for project administration and monitoring, information and education activities, technical assistance, and cost sharing with agricultural operators who apply agricultural water quality BMPs. Through SAWQP planning projects, watershed assessments have been developed on more than four million acres of agriculture, forest and other land since the program's inception in 1981.

If selected for an implementation project, the SCD signs a grant agreement for funds to implement the project plan and becomes the sponsor of the project. Owners and operators of critical agricultural lands within the project boundaries contract with the sponsoring district to apply agricultural BMPs.

Through those contracts, a participant can receive cost sharing for up to seventy-five percent of the cost of practice installation, but not to exceed \$50,000. These participants sign BMP installation contracts which extend for periods of five or ten years.

BMP effectiveness reviews are performed annually on selected projects to determine their effectiveness in protecting water quality. The BMPs and component practices are evaluated as to adequacy of installation and maintenance, and any water quality protection benefits obtained. Program evaluations are conducted annually to determine BMP implementation progress and to assess the effectiveness of each project in reducing agricultural pollution.

Where appropriate, SAWQP and USDA programs are integrated at the state level to maximize nonpoint source water quality protection from agricultural activities. Nonpoint source water quality protection is coordinated with USDA at the national level through the integration of state Nonpoint Source Management Programs in the Water Quality Incentive Program of the 1990 Farm Bill.

## **6. USDA Water Quality Initiatives**

The USDA is made up of a number of different agencies with specific roles and responsibilities. Three primary agencies interrelated and responsible for agricultural management on private lands include the Natural Resource Conservation Service (NRCS), Agricultural Stabilization and Conservation Service (ASCS), and University of Idaho Cooperative Extension Service (CES). The NRCS provides technical assistance and administers various NRCS programs, ASCS administers cost-share and agricultural commodity programs, and CES is designated as the educational arm of the USDA.

### **6.1 Ongoing Water Quality Programs**

#### **6.1.1 Conservation Operations Program**

The Conservation Operations Program provides technical assistance to individuals and groups of landowners, establishing one of the most important links the NRCS has to water quality and the implementation of conservation practices. The one-on-one technical assistance provides farmers and ranchers with information and detailed plans necessary to conserve their natural resources and improve water quality.

#### **6.1.2 Public Law 83-566 Small Watersheds**

Public Law 83-566 authorizes the NRCS to cooperate with state and local entities in planning and carrying out efforts for improving soil conservation and other purposes. The program provides for technical and financial assistance. Current program priorities for planning authorizations include water quality improvement projects, upstream flood control projects and water conservation projects. Projects which provide benefits to the disadvantaged and/or multipurpose projects will receive additional priority.

### **6.1.3 Cooperative River Basin Studies (CRBS) Program**

The Cooperative River Basin Studies (CRBS) program allows for cooperative investigations and surveys with other federal, state, and local agencies for appraising water and related land resources, and formulating alternative plans for conservation, use and development. CRBS products should be instrumental to resource managers and decision makers in understanding and solving their resource problems. Current program priorities include improving water quality, protecting or restoring wetlands, reducing upstream flood losses, and drought management.

### **6.1.4 Resource Conservation and Development (RC&D) Program**

Through locally sponsored areas, the RC&D program assists communities to expand economic opportunities through wise use and development of natural resources by providing technical and financial assistance. Program assistance is available to address problems including water management for conservation, utilization and quality, as well as water quality through control of nonpoint sources of pollution.

## **6.2 USDA Farm Bills**

### **6.2.1 1985 Food Security Act (FSA)**

The Food Security Act of 1985 eliminated eligibility for USDA program benefits for persons who produce agricultural commodity crops on highly erodible lands unless a conservation plan, approved by the local Soil Conservation District, is being applied.

The 1985 Farm Bill also supported wetland conservation and prohibited planting an agricultural commodity on a converted wetland. Converted wetlands or swampbusters were considered to be those lands which drainage or other modification commenced after December 23, 1985. Another conservation provision of the 1985 FSA was the Conservation Reserve Program (CRP). This program allowed owners of eligible land, primarily Highly Erodible Land (HEL), to remove that land from agricultural production by converting it to permanent vegetation for a period of 10 years. In return, the USDA would pay the landowner an annual rental payment based on a bid price submitted by the landowner.

### **6.2.2 1990 Food, Agriculture, Conservation and Trade Act (FACTA)**

The Food, Agriculture, Conservation and Trade Act of 1990 strengthened some of the provision of the 1985 bill and added good faith provision for persons who accidentally or inadvertently violated the conservation compliance provision of the act. Under the 1990 FACTA, much more emphasis was placed on all resource concerns, especially water quality. Existing programs were expanded and new programs were created to better target water quality and other environmental concerns.

The principal conservation program under the 1990 FACTA included the Agricultural Resource Conservation Program which was made up of the Environmental Conservation Acreage Reduction Program (ECARP) and Water Quality Incentive Program (WQIP).

The ECARP was established to assist owners and operators of HEL, as well as other fragile lands (including land with associated ground and surface water that may be vulnerable to contamination), and wetlands, in conserving and improving the soil and water resource. ECARP included CRP and the Wetland Reserve Program (WRP).

The WQIP was specifically created to provide water quality protection, including the source reduction of agricultural pollutants. The program was established to assist owners and operators of lands in eligible areas implement three to five year agricultural water quality protection plans. Protection plans protect ground and/or surface water from potential contamination by agricultural nonpoint sources of pollution through the use of incentive payments to secure changes in management systems.

### **6.2.3 1996 Federal Agricultural Improvement and Reform Act (FAIRA)**

The conservation provisions in the 1996 Farm Bill will affect farmers well into the next century. The new provisions build on the conservation gains made by landowners over the past decade. They simplify existing programs and create new programs to address high priority environmental protection goals. Here is a quick summary of some of the key provisions:

- The new Environmental Quality Incentives Program consolidates the functions of four existing conservation programs into one and focuses assistance to locally-identified conservation priority areas or areas where agricultural improvements will help meet water quality goals. In fiscal year 1996, \$130 million will be available. After that, the program will be funded at \$200 million annually. Funds will pay for technical assistance and cost-sharing on conservation practices. Fifty percent of the funds are dedicated to conservation associated with livestock operations.
- The popular Wetlands Reserve Program and Conservation Reserve Program are extended through 2002. Changes provide landowners more options for protecting wetlands and highly erodible lands. In the Wetlands Reserve Program, landowners will now be able to choose either permanent or 30-year easements, or restoration only cost-share agreements.
- A new Farmland Protection Program will provide up to \$35 million to help farmers preserve their land in agriculture. The program provides assistance to states with existing farmland protection programs to purchase conservation easements.



- Current swampbuster and wetlands provisions from the 1985 and 1990 Farm Bills were modified to provide farmers with more flexibility to meet wetland conservation compliance requirements. Changes include expanding areas where mitigation can be used, allowing mitigation by restoration, enhancement or creation and changing the abandonment clause.
- The new Wildlife Habitat Incentives Program provides \$50 million over the next seven years to help landowners improve wildlife habitat on private lands.
- Conservation Compliance was changed to direct USDA employees who are providing on-site technical assistance to notify landowners if they observe potential compliance problems. Landowners will have up to one year to take corrective action. County committees are authorized to provide relief in cases of economic hardship.
- A Flood Risk Reduction Program was established that allows farmers who voluntarily enter into contract to receive payments on lands with high flood potential. In return, participants agree to forego certain USDA program benefits. These contract payments provide incentives to move farming operations from frequently flooded land.
- The Emergency Watershed Protection Program was amended to allow the purchase of Floodplain Easements.
- The new Conservation of Private Grazing Land initiative offers landowners technical, educational and related assistance on the Nation's 542 million acres of private grazing lands.
- The National Natural Resources Conservation Foundation is created as a nonprofit corporation to fund research, education and demonstration projects related to conservation.
- Membership in the State Technical Committees, the group which provides guidance on technical standards for conservation programs, was broadened to include agricultural producers and others knowledgeable about conservation.
- A new Conservation Farm Option was created for producers of wheat, feed grains, upland cotton and rice who are eligible for Agricultural Market Transition contracts. Under this pilot program, landowners may consolidate their CRP, WRP and EQIP payments into one annual payment. The participants enter into a 10-year contract and agree to adopt a conservation farm plan.
- Under the interagency Wetlands Memorandum of Agreements, the definition of agricultural land was expanded to include not only cropland and pastureland, but also rangeland, native pastureland, other land used to support livestock and tree farms.

## **APPENDIX C**

### **Ground Water Quality Council Responses to Public Comments**

This section lists the comments received during the public comment period. The comments are listed individually by exhibitor. Each comment is followed by the Ground Water Quality Council's response, including how that comment has been incorporated to the text of the plan. There are two sections, one listing the written comments received, and another detailing the verbal comments received at the five public hearings held throughout the state.

#### **WRITTEN COMMENTS**

##### **Exhibit 1**

This comment expressed this group's concern with the emphasis AGWQPP is placing on voluntary Best Management Practices (BMPs), a better clarification of the role and responsibilities of the Agricultural Ground Water Coordination Committee (AGWQCC), and their desire for broader representation on the AGWQCC. This comment also provided three recommendations:

1. Replace voluntary BMPs with mandatory BMPs backed by a site-specific enforceable regulatory framework.
2. In the absence of any legislative or administrative authorization, the AGWQCC shall be advisory to the Director of the Division of Environmental Quality.
3. The AGWQCC membership should be expanded to include representatives from the United States Forest Service, Idaho Fish and Game, Idaho Rural Water Systems, Idaho Association of Counties and the Association of Idaho Cities.

##### **Response:**

1. Voluntary BMPs are being evaluated in terms of their ability to identify potential problems and protect ground water quality. The AGWQPP methodology provides (please refer to the Prevention Flowchart, Figure 2, page 71):
  - a. An Information and Education Strategy based on the concept that "an informed public is more likely to prevent contamination voluntarily without the need for regulatory programs." (GWP Plan, Policy III-A.)
  - b. A BMP Strategy that identifies the BMP, which is then monitored and evaluated.

- c. A Regulatory Strategy that is a site-specific, enforceable regulatory framework which is implemented when the BMP Strategy is not meeting water quality objectives.
2. As indicated on page 76 in the AGWQPP, it is not the responsibility of the AGWQCC to establish rules. “This committee is intended to enhance, not replace, the regulatory process initiated by an agency with specific program authority.” The following verbiage will be added to the AGWQPP, third paragraph on page 76 to better clarify the AGWQCC’s role: “The Agricultural Ground Water Quality Coordination Committee will perform in an advisory capacity and will report to the Ground Water Quality Council or its successor, or in their absence shall be advisory to the agency with specific program authority.”

The Agricultural Chemical Subcommittee will review the AGWQCC statement of purpose, role and responsibilities and will make recommendations to clarify as appropriate.

3. The AGWQCC is intended to be inclusive and membership beyond what is specified on page 77, will require review and approval by the Ground Water Quality Council. The following verbiage will be added to the AGWQPP, fifth paragraph on page 77, to provide some flexibility and inclusiveness to AGWQCC membership: “The membership of the Agricultural Ground Water Quality Coordination Committee may be adjusted to include additional federal and state agencies, water user groups, local government representatives, or other stakeholders approved by a majority vote of either the Ground Water Quality Council or its successor.”

## **Exhibit 2**

This group expressed general approval and is supportive of the voluntary nature of the BMP strategy. They stressed two points of particular support: 1. Regulatory action is reserved for situations where water quality objectives are not being met, and 2. BMPs are being developed to address potential impacts for both surface and ground water quality, and that they are being developed and implemented before contamination occurs. This group made one recommendation that the AGWQCC activities under the *Mechanisms for Implementation* section (pp 76-77) be expanded to include the development of meaningful incentives for growers to adopt voluntary BMPs.

## **Response:**

Federal and state agencies and private sector organizations presently utilize various forms of incentives to promote the adoption of voluntary BMPs. The Natural Resource Conservation Service, Idaho Department of Health and Welfare-DEQ, Idaho Department of Water Resources and Idaho Power, to name a few, work with their constituents to identify sources for cost sharing activities and other incentives. The following verbiage will be added to the role of the BMP Effectiveness Subcommittee (paragraph 1, page 77) to stress the importance of incentives to voluntary BMP adoption: Identify sources for BMP cost sharing and incentives.

**Exhibit 3:**

The commentor indicated general support of the AGWQPP and its methodology of going from education and implementation through Best Management Practices, and then enforcement. The commentor also approved of the AGWQPP's philosophy of not placing an unnecessary bonus of blame, or responsibility on either the regulated community or the regulators. The commentor went on to stress that even though the impetus is through education, there will have to be more staff provided to make the technical transfer from the draft AGWQPP as it now exists to actual implementation in the agricultural community. This will require that recommendations be made to the state legislature to add more staff to facilitate the implementation of the AGWQPP.

**Response:**

The Ground Water Quality Council will pass this recommendation to the Idaho Water Resource Research Institute (IWRRI) and the Cooperative Extension System (CES) for review. IWRRI and CES are represented on the Agricultural Ground Water Quality Coordination Committee, and have cognizance over ground water and agricultural education activities.

**VERBAL COMMENTS****Coeur d'Alene Public Hearing**

The commentor was generally supportive of the program's emphasis on Information and Education, BMPs and enforcement as the last resort. Therefore, the commentor felt that more Extension staff is needed to make the technical transfer of this program to the agricultural community and assure that its implementation is accomplished.

**Response:**

The comment has been taken under consideration.

## ACRONYMS

ACP	Agricultural Conservation Program
APAP	Agricultural Pollution Abatement Plan
ASCS	Agricultural Stabilization and Conservation Service
BLM	Bureau of Land Management
BMPs	Best Management Practices
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CES	Cooperative Extension Service
CRBS	Cooperative River Basin Studies
CRMPs	Coordinated Resource Management Plans
CRP	Conservation Reserve Program
CSGWPP	Comprehensive State Ground Water Protection Program
CWA	Clean Water Act
DEMOs	Water Quality Demonstration Projects
ECARP	Environmental Conservation Acreage Reserve Program
EDMS	Environmental Data Management System
EPA	Environmental Protection Agency
FBL	Feed Back Loop
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FSA	Food Security Act
GIS	Geographical Information System

GWQ	Ground Water Quality
GWQC	Ground Water Quality Council
GWQP	Ground Water Quality Plan
HEL	Highly Erodible Land
HUAs	Hydrological Unit Area Projects
I&E	Information and Education
IASCD	Idaho Association of Soil Conservation Districts
IDA	Idaho Department of Agriculture
IDHW-DEQ	Idaho Department of Health and Welfare - Division of Environmental Quality
IDL	Idaho Department of Lands
IDWR	Idaho Department of Water Resources
NPS	Nonpoint Source
NRCS	Natural Resource Conservation Service
QAPP	Quality Assurance Project Plan
RC&D	Resource Conservation and Development
RCRA	Resource Conservation and Recovery Act
SAWQP	State Agricultural Water Quality Program
SCC	Soil Conservation Commission
SCD	Soil Conservation District
SDWA	Safe Drinking Water Act
SMP	State Management Plan for Pesticides
TSCA	Toxic Substance Control Act

U OF I	University of Idaho
UIC	Underground Injection Control
USDA	United States Department of Agriculture
USFS	United States Forest Service
WRP	Wetland Reserve Program
WQIP	Water Quality Incentive Program
WQS	Water Quality Standards
WQSP	Water Quality Special Project

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## GLOSSARY

**Agricultural activity/Agriculture** — Any activity conducted on land or water for the purpose of producing an agricultural commodity, including crops, livestock, trees, and fish.

**Agricultural chemical** — Any pesticide, nutrient and fertilizer used for the benefit of agricultural production or pest management.

**Agricultural Pollution Abatement Plan** — Also known as the Ag Plan, is authorized under Section 319 of the Clean Water Act. The Ag Plan addresses agricultural nonpoint source pollution concerns in the state. It describes the nonpoint source concerns associated with irrigated cropland, nonirrigated cropland, grazing/riparian and concentrated animal feeding operations. The plan identifies component practices that have been demonstrated to be effective when used to develop best management practices to address agricultural nonpoint source pollution.

**Agricultural waste** — Any waste product or by-product produced as a result of an agricultural activity.

**Ambient** — The water quality at a specific location at the time sampled.

**Aquaculture** — The cultivation of the natural produce of water such as fish, shellfish or plants.

**Aquifer** — A geological formation of permeable saturated material, such as rock, sand, gravel, etc., capable of yielding economically significant quantities of water to wells and springs.

**Artificial recharge** — Recharge of water to an aquifer at a rate greater than natural resulting from the deliberate actions of man.

**Background concentration** — is defined in two different ways:

- **Natural background ground water quality** — The ground water quality unaffected by man.
- **Site background ground water quality** - The water quality directly upgradient of a site.

**Baseline** — Ground water quality at a point in time and place that is used as a point of reference.

**Beneficial uses** — Various uses of ground water in Idaho including, but not limited to, domestic water supplies, industrial water supplies, agricultural water supplies, aquacultural water supplies and mining. A beneficial use is defined by actual current uses or future uses of the ground water.

**Best available method** — Any system, process, or method which is available to the public for commercial or private use to minimize the impact of point and nonpoint source contaminants on ground water quality.

**Best management practice** — A practice or combination of practices determined to be the most effective and practical means of preventing or reducing contamination to ground water and/or surface water from nonpoint and point sources to achieve water quality goals and protect the beneficial uses of the water.

**Best management practice feedback loop** — A process to develop, implement monitor and evaluate the effectiveness of best management practices which are adopted for the protection of ground water quality. This process provides for the continued improvement or refinement of practices to achieve ground water quality goals.

**Best practical method** — Any system, process, or method that is established and in routine use which could be used to minimize the impact of point or nonpoint sources of contamination on ground water quality.

**Cleanup** — The removal, treatment or isolation of a contaminant from ground water through the directed efforts of humans or the removal or treatment of a contaminant in ground water through management practices or the construction of barriers, trenches and other similar facilities for prevention of contamination, as well as the use of natural processes such as ground water recharge, natural decay and chemical or biological decomposition.

**Confined aquifer** — A geological formation in which water is isolated from the atmosphere by an overlying less permeable geological formation. Confined ground water is generally subject to pressure greater than atmospheric; thus, the water level rises above the top of the aquifer.

**Contaminant** — Any chemical, ion, radionuclide, synthetic organic compound, microorganism, waste or other substance which does not occur naturally in ground water or which naturally occurs at a lower concentration.

**Contamination** — The direct or indirect introduction into ground water of any contaminant caused in whole or in part by human activities.

**Crop root zone** — The zone that extends from the surface of the soil to the depth of the deepest crop root and is specific to a species of plant, group of plants or crop.

**Degradation** — The lowering of ground water quality as measured in a statistically significant and reproducible manner.

**Feedback loop** — See definition under best management practice feedback loop.

**Fertilizer** — Any substance containing one or more plant nutrients which is used for its plant nutrient content and/or for promoting plant growth, including limes, gypsum and manipulated animal and vegetable manures.

**Ground water** — Any water of the state which occurs beneath the surface of the earth in a saturated geological formation of rock or soil.

**Ground water quality standard** — Values, either numeric or narrative, assigned to any contaminant for the purpose of establishing minimum levels of protection.

**Indian tribe** — Any Indian tribe having a federally recognized governing body carrying out substantial governmental duties and powers over any area.

**Injection well** — An excavation or artificial opening in the ground which meets the following three criteria;

- A bored, drilled or dug hole, or a driven mine shaft or a driven well point; and
- Deeper than it is wide; and
- Used for or intended to be used for injection.

**Level of confidence** — Reflects the confidence level that is appropriate for data. It in turn reflects the quality assurance level achieved during data collection and the analytical level achieved during sample analysis.

**Local government** — Cities, counties and other political subdivisions of the state.

**Local monitoring** — Any investigation of areas of known or suspected contamination on a scale from a single site to less than ten square miles.

**Nonpoint source** — A potential source of contamination having diffuse or multiple discharges of contaminants that are spread over a large area.

**Nonregulated releases** — Contaminants knowingly or unknowingly discharged from one or more sources which are currently not regulated.

**Nutrient** — Any substance applied to the land surface or plants which is intended to improve germination, growth, yield, product quality, reproduction, or other desirable characteristics of plants.

**Perched aquifer** — Unconfined ground water separated from an underlying main body of ground water by an unsaturated zone.

**Person** — Any human being, any municipality or other governmental or political subdivision or other public agency, any public or private corporation, any partnership, firm, association, or other organization, any receiver, trustee, assignee, agent or other legal representative of any of the foregoing, or any other legal entity.

**Pesticide** — (1) Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or (2) any substance or mixture of substances intended for use as a plant growth regulator, defoliant, or desiccant. Insecticides, herbicides, fungicides, rodenticides, fumigants, disinfectants and plant growth regulators are all identified as pesticides.

**Point source** — A potential source of ground water contamination which is individually identifiable in terms of point of release and zone of impact in the aquifer.

**Political subdivision** — The state of Idaho, or any corporation, instrumentality or other agency thereof, or any incorporated city, or any county, school district, water and/or sewer district, drainage district, special purpose district or other corporate district constituting a political subdivision of the state, any quasi-municipal corporation, housing authority, urban renewal authority, other type of authority, any college or university, or any other body corporate and political of the state of Idaho, but excluding the federal government.

**Projected future beneficial uses** — Various uses of ground water such as drinking water, aquaculture, industrial, mining or agriculture that are practical and achievable in the future based on hydrogeological conditions, water quality, future land use activities and social/economic considerations.

**Recharge area** — An area in which water infiltrates into the soil or geological formation from precipitation, irrigation practices and seepage from creeks, streams, lakes etc. and percolates to one or more aquifers.

**Regional monitoring** — Investigation of areas of known or suspected contamination on a scale of 1 to 10 to about 250 square miles.

**Remediation** — Any action taken (1) to control the source of contamination, (2) to reduce the level of contamination, (3) to mitigate the effects of contaminants, and/or (4) to minimize contaminant movement. Remediation includes providing alternate drinking water sources when needed.

**Restoration** — Measures taken to return a site to pre-contamination conditions.

**Saturated zone** — A zone or layer beneath the earth's surface in which the interconnected pore spaces of rock and sediments are filled with water.

**Shallow injection well** — An injection well which is less than or equal to eighteen (18) feet in vertical depth below land surface.

**Sole source** — A protective aquifer designation established by Section 1424(e) of the Safe Drinking Water Act and applied by the U.S. Environmental Protection Agency to an aquifer considered to be the sole or principal drinking water source for a geographic area and which, if contaminated, would create a significant hazard to public health. This has no bearing on the state categorization system.

**State Pesticide Management Plan** — A plan developed to address the use of pesticides which have been identified by EPA as having potential to result in ground water contamination. Plan components include prevention measures, monitoring, response to contamination and enforcement mechanisms to be implemented for specific pesticides. The SMP is part of a ground water protection strategy authorized under the Federal Insecticide, Fungicide and Rodenticide Act.

**Unconfined aquifer** — An aquifer in which there is no confining bed between the zone of saturation and the land surface. The upper surface of the saturated water body is called the water table. The water pressure is atmospheric.

**Unsaturated zone** — Zone or layer of earth in which not all of the interconnected pore spaces of rock or soil are filled with water.

**Urban and nonagricultural chemical use** — Application of agricultural chemicals for other than crop production purposes, including right-of-way, non-cropland, industrial, and residential pest control.

**Wellhead** — The physical structure, facility, or device at the land surface from or through which ground water flows or is pumped from subsurface, water-bearing formations.

**Wellhead protection area** — The surface and subsurface area surrounding a wellhead or well field, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or well field.

**Wellhead setback area** — An area immediately surrounding a wellhead in which potential sources of contamination are controlled or restricted.

## ACRONYMS USED IN PLAN

APA	Administrative Procedures Act
APAP	Agricultural Pollution Abatement Plan
ARS	Agricultural Research Service
ASCS	Agricultural Stabilization and Conservation Service
BMP	Best Management Practices
CAFO	Confined Animal Feeding Operation
CECLA	Comprehensive Environmental Response Compensation and Liability Act
CES	Cooperative Extension Service
DEQ	Division of Environmental Quality
DOT	Department of Transportation
EDMS	Environmental Data Management System
EPA	Environmental Protection Agency
FBL	Feedback Loop
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FOTG	Field Operation Technical Guide
GWR	Ground Water Review
HMB	Hazardous Materials Bureau
IDA	Idaho Department of Agriculture
IDHW	Idaho Department of Health and Welfare
IDHW-DEQ	Idaho Department of Health and Welfare, Division of Environmental Quality
IDL	Idaho Department of Lands
IDT	Idaho Department of Transportation
IDWR	Idaho Department of Water Resources
IERC	Idaho Emergency Response Commission
INEL	Idaho National Engineering Laboratory
IWRRI	Idaho Water Resources Research Institute
MCL	Maximum Contaminant Level
MOU	Memorandum of Understanding
NDMA	No Degradation Management Area
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
ppb	Parts per Billion
ppm	Parts per Million
QA	Quality Assurance

QC	Quality Control
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendment and Reauthorization Act
SAWQP	State Agricultural Water Quality Program
SCC	Soil Conservation Commission
SCD	Soil Conservation District
SCS	Soil Conservation Service
SMP	State Pesticide Management Plan
UIC	Underground Injection Control Program
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UST	Underground Storage Tank
WHPP	Wellhead Protection Program

## **APPENDIX A**

### **Ground Water Quality Council Responses To Public Comments**

This section lists the comments received during the public comment period. The comments are listed individually by exhibitor. Each comment is followed by the Ground Water Quality Council's response, including how that comment has been incorporated into the text of the plan. There are two sections, one listing the written comments received, and another detailing the verbal comments received at the six public hearings held throughout the state.

### **WRITTEN COMMENTS**

#### ***Exhibit 1***

The comment recommended that the Council seek out a ground water study known as the "Chino Study". Commentor also included a clipping from the Los Angeles Times, dated December 12, 1990 which details the large amounts of manure produced by the Chino Agricultural Preserve and the effect it has had on ground water. Commentor noted that once ground water is contaminated by these means, it will remain contaminated for a long period of time.

#### ***Response:***

The Ground Water Council recognizes that Confined Animal Feeding Operations (CAFOs) are a potential source of ground water contamination. CAFOs have been addressed in the portion of the plan entitled Agricultural Chemical Source Matrix, Appendix B. The information provided in the Chino Study will also be useful as resource material in the development of ground water regulations.

#### ***Exhibit 2***

The comment consisted of 63 surveys conducted in the Avondale Subdivision in Hayden Lake, Idaho. The surveys show that problems such as discoloring, poor taste, odor, and stained dishwashers, toilets, and laundry are being encountered by citizens of the subdivision.

#### ***Response:***

Copies of all surveys have been forwarded for attention and possible action to the DEQ Coeur d'Alene Regional Office which has jurisdiction over public drinking water systems in that area. In instances where illness has been noted, the District Health Department will be notified for investigation of the problem. Since the system is a public drinking water system, it would be regulated under the Idaho Regulations for Public Drinking Water Systems.

#### ***Exhibit 3, Paragraph 3***

This comment stated an appreciation for having the costs of implementation submitted with the plan, but did not feel that money should be generated for the plan through additional sales taxes.



***Response:***

The Council has noted your response and will take up the issue of funding sources again at future meetings.

***Exhibit 3, Paragraph 4***

The comment expressed the need to improve the monitoring program and stressed that the data should be made more accessible to the public.

***Response:***

The portion of the plan entitled, "Ground Water Quality Monitoring Program" addresses this comment. The plan establishes a geographic information system to store the data which will be accessible to the public upon request.

***Exhibit 3, Paragraph 5***

The comment states that the comment is unclear in assigning financial responsibility to polluters for cleanup.

***Response***

The plan attempts to address the issue of assigning financial responsibility to polluters; however, the Council did not feel that the plan could adequately address the issue and recommends separate legislation be drafted on remediation issues.

***Exhibit 4, Point 1***

Comment suggested the plan could be made stronger if it set water quality standards that include preventative action limits to initiate corrective actions before standards are exceeded.

***Response:***

The Ground Water Council has chosen to look at trends rather than using single number preventative action limits to trigger a corrective action before a standard is reached. The concept of a trend will be developed further in the Ground Water Quality Regulations. The following statement will be added to the rationale for Policy I-D, Ground Water Quality Standards, which states, "Will not ignore obvious man made chemicals which are not naturally found in ground water."

***Exhibit 4, Points 2 and 3***

The commentor showed concern over whether enforcement of existing regulations will continue after adoption of the plan or if new enforceable regulations would be adopted. Concern was also voiced about present federal programs not being integrated into the plan.

***Response***

Existing regulations will continue to be used. They will be evaluated and revised if needed to incorporate ground water protection issues. The state Ground Water Quality Plan and the Federal Sole Source Designation Program are two different programs. The Ground Water Quality Plan looks at protection of ground water as a resource while the federal program looks at ground water as a drinking water source. The Council did not want to incorporate federal programs into a state program as this could bring federal officials into state issues.

***Exhibit 4, Point 4***

This portion of the comment noted that there was no schedule for implementing the new programs.

***Response:***

The target dates cannot be finalized until the amount of funding has been established and approved by the legislature.

***Exhibit 5, Point 1***

The commentor questioned how mining operations would be abandoned once mining in an area was completed. The commentor also felt that the plan should be stricter, particularly in the area of mining. They also wanted the plan to address exploratory mining.

***Response:***

The issue of abandonment of mines is covered in the last implementation item of Policy II-C on page 32. The implementation portion of the policy calls for the development of further regulations for those mining issues not already addressed. Any regulations which are developed in the future will go through the public notice and comment process which provides an opportunity to make recommendations about specific mining issues.

***Exhibit 5, Point 2***

This portion of the comment suggests that the Council delete the word practical in Policy II-A, so that segment of the policy would read maximum extent, instead of maximum extent practical.

***Response***

The phrase “maximum extent practical” is taken directly from Idaho Code §39-102, which states the following goal of the ground water quality protection act, “It is the policy of the state to prevent contamination of ground water from any source to the maximum extent practical.” This was the legislators choice of words to express their intent. The Council followed the direction given by the legislature on terminology.

***Exhibit 5, Point 3***

It was suggested that the Council define “better ways of doing business in all aspects of our society” as used in the plan. This type of phrase could leave loopholes.

***Response:***

This language could not be found in the plan directly as quoted, even though the concept is inferred throughout the plan. This concept is not meant to imply regulatory or policy boundaries.

***Exhibit 5, Point 4***

The comment suggests that the Council define responsible parties and assign responsibility for cost of cleanup to the perpetrator, not the taxpayer.

***Response:***

The plan attempts to address a framework for a definition of responsible party; however, the Council did not feel that the plan could adequately address the issue and recommends separate legislation be drafted. On the issue of forcing the perpetrator to pay for costs of cleanup, the Council agrees, but realizes that this is not always possible.

***Exhibit 6, Point 1***

The term “best available methods” should be more clearly defined so as to distinguish why the term best available methods was used instead of best available technologies.

***Response:***

The Council chose to not use the term best available technology to avoid confusion with the Clean Water Act and surface water regulations which utilize best available technologies. The EPA has also specifically defined best available technologies for use in surface water situations. Since the term has traditionally been used in relationship with surface water issues, the term was changed to reflect ground water. The difference between best available methods and best available technologies will further be stated in the plan under Policy I-C, Categorization of Ground Water, in the implementation section.

***Exhibit 6, Point 2***

The Drinking Water Category lacks incentive to look at best available technologies.

***Response:***

Policy II-A, Prevention of Ground Water Contamination, provides the incentive to look at best available methods and other preventative measures, while Policy I-C, Categorization of Ground Water, provides clarification of the different categories of ground water.

***Exhibit 6, Point 3***

Policy IV-C, Local/State Consistency, should remain as written in the draft of the Ground Water Quality Protection Plan; as it provides local units of government with flexibility to implement the plan.

***Response:***

Due to comments requesting clarification of this policy, the Council has reworded Policy IV-C, Local/State Consistency to read, “The policy of the state of Idaho is that local governments assist in the implementation of the Ground Water Quality Plan under the authorities given them in the Idaho State Constitution and the Idaho Code. Local government may provide ground water protection through mechanisms appropriate to their authority to address local concerns and needs. Such mechanisms should be consistent with state laws and the Ground Water Quality Plan. Further, such local mechanisms should not impose duplicate permitting requirements on the public.” The Rationale and Implementation portions of this policy, have also been reworded to coincide with the policy.

***Exhibit 7***

Commentor voiced strong objections to any further building at the INEL, as current levels of tritium and chromium in the ground water around the INEL already exceed the Federal Drinking Water Standards.

***Response:***

The comment has been noted by the Ground Water Council.

***Exhibit 8***

The comment strongly supports Policy IV-C, Local/State Consistency, as written in the draft plan.

***Response:***

See response to Exhibit 6, Point 3.

***Exhibit 9***

The commentor related how pesticide laden run-off irrigation water had caused the death of some of his livestock in the Magic Valley.

***Response:***

This problem would fall under the authority of the surface water regulations rather than this ground water plan. The Ground Water Quality Plan does address the interrelationship of surface and ground water in Policy I-B. Additional language was also added to the rationale for Policy I-B so the sentence now reads, "The intent is to ensure that the quality of ground water that discharges to surface water does not impair identified beneficial uses of the surface water and that surface water infiltration does not impair beneficial uses of ground water."

***Exhibit 10***

The commentor urged the Council to create stronger preventive and mandatory protection measures rather than the voluntary and educational approach that is taken in the draft of the plan. The voluntary approach makes the plan appear very weak.

***Response:***

The Ground Water Council, after again considering this issue, disagrees with the prospect of creating only mandatory enforcement measures. The voluntary approach is intended as the first step in the enforcement approach. The voluntary approach includes incentive programs which are the key to making this approach work. If voluntary approaches are ineffective, then mandatory enforcement will be implemented.

***Exhibit 11, Point 1***

Table 2, on page 28, under "Enforcement Approach When Standards are Exceeded", gives the impression that a problem must occur before regulations may be revised to address the problem.

***Response:***

Water Quality Regulations currently exist to deal with many programs. Ground Water Quality Regulations including numerical and narrative standards are in the process of being developed, emphasizing that the plan does not wait for problems to occur before addressing them. Sources of contamination will be addressed in a source specific manner within the Ground Water Regulations.

***Exhibit 11, Point 2***

On page 29, under the third implementation item, language should be added stressing that educational and technical assistance is necessary for regulatory programs as well as voluntary programs.

***Response:***

The Council agreed with the commentor that the language should be added.

***Exhibit 11, Point 3***

On page 32, Policy II-C, Mining, the first implementation issue should be charged to read, "IDHW-DEQ in cooperation with IDL...", Since the Idaho Department of Lands is not the expert on ground water quality.

***Response:***

The Council disagrees and feel that the language should remain as written in the draft plan since IDL is the expert on mining issues.

***Exhibit 11, Point 4***

The last implementation item under Policy VI-A, Remediation, does not utilize a proactive approach. The language should be changed to direct remediation to be initiated without waiting to develop institutional controls.

***Response:***

The paragraph was intended to address areas where restoration has been eliminated.

***Exhibit 11, Point 5***

Commentor noted that Policy VI-B, Liability for Costs of Remediation, under implementation item number 3, ground water should replace contamination in this phrase since ground water is remediated and contamination is not remediated. Also the phrase of the sentence stating, "If a public fund is not established for remediation," is unclear.

***Response:***

The Council concurred with the suggestion of the commentor. This language will be changed in the final plan.

***Exhibit 11, Point 6***

In Policy VI-B, implementation item number 5, will the same threshold to have local funding pay for remediation apply to all categories?

***Response:***

The Council has taken your comment under consideration.

***Exhibit 11, Point 7***

The introduction to the Agricultural Ground Water Quality Program Progress Report implies that the following section is not a plan but a report of what has been done in the past and what will be used in the future. Also the Information and Education section on page 45 indicates that there are no new strategies, plans, or priorities for the future. What are the future plans for this portion of the program. Next on page 56, fifth component, who will determine whether or not the voluntary involvement is "adequate"? What does the term "adequate" mean? How will the "inner loop" of the feedback loop be emphasized. Page 58, the first paragraph states that there are several sources of funding available for incentive programs. Where is the information listed so people are aware of it?

***Response:***

The Ground Water Quality Council, after reviewing the section of the plan entitled Agricultural Ground Water Quality Program Progress Report, decided that this section needs additional revisions and has deleted it from the final draft of the plan. The Agricultural/Chemical Subcommittee will continue to work on this item and bring a revised Agricultural Plan back to the Council at a later date for approval.

***Exhibit 12, Point 1***

The commentor noted that the Best Management Practices (BMPs) need to be more prevention oriented rather than reaction oriented.

***Response:***

The Agricultural/Chemical subcommittee was directed to address this issue. The subcommittee brought their recommendations to the November, Ground Water Quality Council meeting. The recommendations included a preventative feedback loop alternative to address this concern.

***Exhibit 12, Point 2***

On page 28, Table 2, the non mandatory programs should have mandatory BMPs which are triggered once declining water quality is identified.

***Response:***

The feedback loop addresses the triggering of a mandatory BMP if a decline in water quality is identified.

***Exhibit 12, Point 3***

The commentor recommended the addition of language in the plan to address the interaction between the plan and proper use and disposal of household hazardous wastes.

***Response:***

The issue is addressed indirectly by Policy III-A, Public Education on Ground Water Quality, and is also included in the “Agricultural Chemical Source Matrix” in Appendix B.

***Exhibit 13, Point 1***

The plan does not set standards that would trigger preventative management measures before a safe drinking water standard is exceeded.

***Response:***

See response to Exhibit 4, Point 1.

***Exhibit 13, Point 2***

Federal programs such as the Sole Source Aquifer Designation Program are not integrated into the plan.

***Response:***

See response to Exhibit 4, Points 2 and 3.

***Exhibit 13, Point 4***

There is no schedule to implement any of the new programs.

***Response:***

See response to Exhibit 4, Point 4.

***Exhibit 14, Point 1***

Commentor raises the question of how the plan will be funded and enforced.

***Response:***

The issue of funding has not yet been decided. Enforcement will be done through the use of existing and future regulations which give enforcement capability to state and local officials on ground water issues.

***Exhibit 14, Point 2***

How will the INEL be governed?

***Response:***

This comment is addressed in Policy IV-D, Federal Consistency, which states that “ground water underlying all federally owned lands be provided with the same level of protection from contaminants as other ground water in the state.”

***Exhibit 14, Point 3***

How will the non-point pollution from agriculture be controlled.

***Response:***

This issue is addressed in Policy II-B, Agricultural Chemical and Nutrient Management.

***Exhibit 14, Point 4***

How can the use of chemicals in the yard, home, schools, etc. be reduced?

***Response:***

This issue is addressed indirectly by Policy III-A, Public Education on Ground Water. By educating the public on proper use and disposal of chemicals and alternatives to the chemicals, their use can be reduced or managed more efficiently.

***Exhibit 15***

The plan needs to be stronger if it is to fully protect the ground water of Idaho.

***Response:***

The Council feels the Ground Water Quality Plan will adequately protect the state’s ground water quality while not hindering ground water beneficial uses.

***Exhibit 16, Point 1***

The plan needs to incorporate more stringent controls of some chemicals that we know are being used in areas overlying ground water.

***Response:***

This issue is addressed under Policy I-C, Categorization of Ground Water. The Agricultural Chemical Source Matrix, in Appendix B also addresses this comment.

***Exhibit 16, Point 2***

Injection wells are not adequately addressed under the existing UIC program. The inspections are set up for once every ten years with no follow through on high bacteria counts when they are encountered.

***Response:***

It was recommended that this program be reviewed under program evaluations, which is the first implementation item listed under Policy II-A, and revisions be made as needed to address concerns.

***Exhibit 16, Point 3***

The plan lacks minimal numerical standards, the classification of aquifers which are vulnerable and merit immediate protection under Section 1424(e) of the Safe Drinking Water Act, the safeguards of preventative action limits, and any methods to enforce the protection of ground water.

***Response:***

Numerical ground water standards and ground water classifications is in the process of being addressed in Ground Water Regulations. The Council decided against the use of preventative action limits in favor of using trends as a means of determining when further action is needed. Finally, the plan is not an enforcement document, but a management document to provide direction for what should be done in ground water protection. Enforcement capabilities are addressed in existing regulations and any future regulations that will be developed.

***Exhibit 17***

The commentors requested that iron bacteria be added as a microbial requirement in the monitoring plan. They also recommended some numerical standards for ground water.

***Response:***

The Monitoring Subcommittee looked at the possibility of adding iron bacteria as a microbial requirement in the monitoring plan. The subcommittee recommended that iron bacteria not be added as a microbial requirement since there are no actual health threats from the bacteria and no health limits have been established. The numerical standards which were recommended have been given to the individuals working on Ground Water Quality Standards for consideration.

***Exhibit 18***

In Policy IV-C, Local/State Consistency, should be refined to incorporate the fact that more stringent ground water quality standards would not be in conflict with the plan.

***Response:***

The management and operational standards may vary slightly based on the category which the ground water is placed in, but the main purpose of the plan is to maintain one set of ground water quality standards throughout the state for consistency. The term ground water quality standard has been defined in the glossary of the plan.

***Exhibit 19***

Concern was voiced over the fact that Policy IV-B, Local/State Government Interaction, states that local governments “shall integrate the Ground Water Quality Assurance Plan in their existing programs,” while Policy IV-C, Local State Consistency, seems to prohibit local governments from issuing permits for local control and neglects to clearly allow local governments to collect fees.

***Response:***

This issue is addressed in Idaho Code and will also be included in the funding narrative that goes to the legislature. The Council agrees that funding mechanisms should be made available to provide for local funding of the Ground Water Quality Protection Plan, and a statement clarifying this will be added to the implementation items for Policy IV-B, Local/State Government Interaction.



***Exhibit 20, Point 1***

Commentor suggested that all “shoulds” in the plan be changed to “shall”, and “woulds” to “wills” to create a stronger plan.

***Response:***

The Ground Water Council chose by vote to use “should” and “would” in the plan because the Ground Water Quality Protection Act of 1989 says that the plan should make recommendations not mandates.

***Exhibit 20, Point 2***

The commentor details numerous events which have lead led to the contamination of surface water.

***Response:***

See response to Exhibit 9.

***Exhibit 21***

The interpretation was made that Policy IV-C, Local/State Consistency, said that duplicate fees cannot be imposed. Commentor would like this point clarified.

***Response:***

Policy IV-C does not address or include fees at this time.

***Exhibit 22***

The commentor feels that the portion of Policy IV-C, Local/State Consistency, stating, “do not conflict with” should remain in the final draft of the plan and not be reworded.

***Response:***

See response to Exhibit 6, Point 3.

***Exhibit 23***

The commentor supports Policy IV-C, Local/State Consistency, and thinks it should be retained as written in the draft plan.

***Response:***

See response to Exhibit 6, Point 3.

***Exhibit 24, Point 1***

The commentor would like to see a “zero or no degradation” approach rather than the current philosophy which allows minimal amounts of deterioration of ground water quality.

***Response:***

The philosophy chosen by the Ground Water Quality Council reflects an overall antidegradation approach rather than a zero-degradation, since zero-degradation eliminates many activities which the population depends on like sewage systems, farming, etc.

***Exhibit 24, Point 2***

No clear statements exist in the mining feedback loops or in the plan to address exploratory drilling. Also the mining policy is unacceptable.

***Response:***

This issue has been referred to the program evaluation implementation item under Policy II-A, Prevention of Ground Water Contamination.

***Exhibit 24, Point 3***

The point of compliance concept needs further clarification as used in the Ground Water Quality Plan.

***Response:***

Point of compliance will be detailed fully in the Ground Water Quality Regulations, and the Council does not feel it necessary to add additional language for this concept in the plan.

***Exhibit 25, Point 1***

The commentor does not feel that local governments should be able to implement and adopt ground water quality policies, ordinances and BMPs as allowed by Policies IV-B, Local/State Government Interaction, and IV-C, Local/State Consistency.

***Response:***

See response to Exhibit 6, Point 3.

***Exhibit 25, Point 2***

The commentor encouraged the state to develop and set clear time tables for implementing the various programs.

***Response:***

See response to Exhibit 4, Point 4.

***Exhibit 26, Point 1***

The implementation recommendations under Policy IV-A, Public Participation should be changed to allow further incorporation of public comment in the development of existing and future rules, regulations and guidelines.

***Response:***

The Council has reviewed this issue and has strengthened this concept by changing the rationale to read, "Public participation is essential to encourage public input and acceptance of ground water..."

***Exhibit 26, Point 2***

Language should be added to Policy IV-B, Local/State Government Interaction, which would allow a funding mechanism to be developed and provided to local governments for implementation of the plan.

***Response:***

See response to Exhibit 19.

***Exhibit 26, Point 3***

Language should be added to Policy IV-C, Local/State Consistency, which says, "the regulatory development process should incorporate a case-by-case analysis, review or waiver to address local issues or problems in order to allow adequate response to those issues."

***Response:***

This issue will be looked at during Ground Water Quality Regulation development.

***Exhibit 26, Point 4***

This comment encourages funding for the regional and local monitoring portions of the monitoring program due to the importance of monitoring in addressing ground water contamination and remediation.

***Response:***

The Council will take this comment into account when setting funding priorities.

***Exhibit 26, Point 5***

Policy VI-B, Liability for Costs of Remediation, provides a foundation for addressing ground water remediation, but does not provide protection for local governments who may acquire contaminated property through condemnation or reversion.

***Response:***

This issue needs to be addressed in separate legislation which is being developed by a subcommittee to address remediation issues, including identifying responsible parties. Upon completion, the Bill will be reviewed by the full Council, and submitted to the legislature.

***Exhibit 27, Point 1***

On page 13, under Goals and Requirements of the Ground Water Quality Plan, the language should be changed to read, "All ground water shall be protected as a potable water supply unless it can be demonstrated that the existing quality and available quantity are insufficient to support such use."

***Response:***

Idaho Code §39-102 establishes the goal as it reads in the plan on page 13.

***Exhibit 27, Point 2***

Policy I-A should be changed to read, "The policy of the state of Idaho is to protect the existing high quality of the state's ground water as a potable water supply unless the existing quality and/or quantity are insufficient to support such use."

***Response:***

The Council feels that this would allow too much degradation of the state's ground water, since drinking water does not require the highest quality for all beneficial uses.

***Exhibit 27, Point 3***

Policy I-C, Categorization of Ground Water, should be changed to read, "The policy of the state of Idaho is to provide protection for the state's ground water resources. A ground water categorization system will be established for aquifers or portions of aquifers. This categorization system will be based on ground water vulnerability to contamination, existing and protected future beneficial uses of ground water (including community development) and existing water quality and quantity." Also change the rationale on the same policy to read, "The level of protection afforded ground water should be consistent with its present water quality, its vulnerability to contamination and its existing and projected future beneficial uses. Categorization of ground water will allow for different levels of protection in recognition of the unique naturally occurring, characteristics of aquifers and portions of aquifers within the state."

***Response:***

The plan deals only with quality issues, thus the Council has decided to leave the languages as it was in the draft plan.

***Exhibit 27, Point 4***

Define significant potential as it is used on page 45 of the plan. Also what will be the trigger value or procedure that initiates remediation?

***Response:***

The definition of significant potential is a technical decision which should be left to the agencies, since it is a site specific issue. The trigger value should remain flexible so that local criteria also have flexibility.

***Exhibit 27, Point 5***

The implementation item of Policy VI-A, Remediation, which deals with funding alternatives, should include a mechanism to impose monetary penalties when the responsible party is unwilling to remediate and there is an imminent threat to human health or the environment.

***Response:***

The issue is already addressed in Idaho Code 39-1086.

***Exhibit 27, Point 6***

New language should be created for the last implementation item of Policy VI-A, Remediation.

***Response:***

This implementation item has been changed to read, "Ground water quality which has been degraded by past mining practices should be restored where feasible and appropriate to support identified beneficial uses. Where restoration of such ground water is not feasible or appropriate to support identified beneficial uses, the appropriate level of government shall assure development of controls to prevent ground water use and to prevent contaminant mobility beyond an established zone surrounding the historic mining area."

***Exhibit 27, Point 7***

The third paragraph on page 58 states that "other techniques" will be used to evaluate BMP's. What will these "other techniques" be?

***Response:***

This issue will be more completely developed in the portion of the plan entitled Agricultural Ground Water Quality Program.

***Exhibit 27, Point 8***

In Enclosure II it should be added that the SCS has no enforcement capability and cannot implement any ground water remediation.

***Response:***

A page break existed which caused confusion on what the SCS's capabilities really are. The page break will be adjusted to prevent further confusion.

***Exhibit 28, Point 1***

A statement should be added to qualify that the plan only addresses ground water quality issues and not those related to ground water quantity.

***Response:***

This has been addressed by adding clarifying language to the Executive Summary of the plan.

***Exhibit 28, Point 2***

The plan should make a bigger distinction between past legal and illegal practices for the purpose of determining liability for remediation. Past legal practices should not be viewed as liable as past illegal practices.

***Response:***

It is beyond the scope of the plan to assess the degree of liability. This issue will have to be considered in the Remediation bill currently being drafted.

***Exhibit 28, Point 3***

Item 2 on page 25 should be changed to read, "Initially all aquifers with activities having the potential to impact ground water will be categorized. Categorization for areas which currently have no activities would be initiated when an activity with the potential to impact ground water is proposed over an uncategorized aquifer. Initial categories should be adopted by rule of the Board of Health and Welfare with full opportunity for public comment as provided under the Administrative Procedures Act. State agencies should not delay actions, or deny or delay the processing or approval of any permit for an activity based on the fact that the Board has not completed the initial categorization process."

***Response:***

The language has been changed to read as suggested.

***Exhibit 28, Point 4***

Item 3 on page 25 should be revised to read, "The process should not be so lengthy that it is prohibitive. Time frames should be established in the regulations so that if the Board fails to meet those time frames the petitioners request for recategorization would be automatically granted."

***Response:***

The language has been revised to read, "The process should not be so lengthy that it is prohibitive. Time frames should be established in the regulations and conditions specified if time frames are not met." The idea of an automatic recategorization being granted was not supported.

***Exhibit 29, Point 1***

The commentor agreed with Policy II-B, Agricultural and Nutrient Management, but disagrees with the Rationale statement which would implement mandatory best management practices if voluntary best management practices are not adequate. The commentor also stressed the importance of education and monitoring and stressed that these two items be a priority to receive funding.

***Response:***

See response to Exhibit 12, Point 1.

***Exhibit 29, Point 2***

The commentor agreed with the wording in Policy IV-C, Local/State Consistency, but does not feel that they should be able to impose duplicative regulations which may conflict with the irrigation district boundaries.

***Response:***

See response to Exhibit 6, Point 3.

***Exhibit 29, Point 3***

The plan does not carefully address the issue of liability.

***Response:***

See response to Exhibit 28, Point 2.

***Exhibit 30, Point 1***

The commentors objected to the Policy IV-C, feeling that it implies local governments lack the ability to determine their own “destiny”, and implies certain duties on local government, while denying them the ability to take action in these areas.

***Response:***

See response to Exhibit 6, Point 3.

***Exhibit 30, Point 2***

The implementation section of Policy VI-B, Liability for Costs of Remediation, states when the person who caused the contamination cannot be found, “the general public, through state or local funding will have to pay for any remediation that occurs.” The commentors do not find this statement acceptable to local governments of Idaho as it may bankrupt many of the smaller local governments.

***Response:***

See response to Exhibit 26, Point 5.

***Exhibit 31, Point 1***

It was recommended that the language in Policy V-E, Environmental Data Management System, be deleted which says, “as to its level of confidence and utility for specific purposes.”

***Response:***

This section of the sentence has been deleted as requested.

***Exhibit 31, Point 2***

The language on page 52 should be changed to read, “levels of confidence will be assigned based on several factors including the purpose and potential uses of the data.” The words “the purposes and potential uses of the data” should be removed from the text.

***Response:***

The wording has been deleted as requested.

***Exhibit 32,***

The interrelationship of the plan with other documents such as the 319 Non Point Assessment, Water Quality Standards, Ag Pollution Abatement Plan, Idaho Water Use Plan should be shown.

***Response:***

The paragraph has been added to the Introduction and Executive Summary of the plan clarifying the issue.

***Exhibit 33, Point 1***

There is concern over Policy II-B, Agricultural Chemical and Nutrient Management, that even if farmers are applying voluntary BMPs, agencies may apply mandatory BMPs if the voluntary ones are not working. Good education and use of the feedback loop are the best means to prevent ground water pollution.

***Response:***

See response to Exhibit 12, Point 1.

***Exhibit 33, Point 2***

The issue of liability is not fully addressed in the draft Policy VI-B, Liability for Costs of Remediation.

***Response:***

See response to Exhibit 26, Point 5.

***Exhibit 34, Point 1***

Preventative action limits are needed as a means to ensure prevention of ground water contamination.

***Response:***

See response to Exhibit 16, Point 3

***Exhibit 34, Point 2***

Land use controls should be adopted as part of the ground water protection plan as in Connecticut and Massachusetts.

***Response:***

The statute for the land use plan will be referenced and incorporated into the plan under Policy IV-B, Local/State Government Interaction, implementation section.

***Exhibit 35***

Idaho Department of Transportation injection wells and storm drains should be plugged, and all injection wells must be phased out. Also the plan is weak and will not adequately protect the state's ground water.

***Response:***

The issue of injection wells will be reviewed under the program evaluation and implementation item under Policy II-A, Prevention of Ground Water Contamination.

***Exhibit 36***

Governmental agencies must be held as accountable as private citizens for contamination of ground water.

***Response:***

The plan already addresses this issue and concurs with the commentors suggestions.

A few comments were received after the public comment deadline had passed. Even though these comments are not specifically detailed and an exact response shown, they have been reviewed and addressed where appropriate by the Council.

## **VERBAL COMMENTS**

### ***Idaho Falls Public Hearing***

1. Commentor is glad to see that the program is voluntary, and would like to see it continue in this fashion. There was also a concern about the possibility of conflict between the Ground Water Quality Plan, the Surface Water Act implemented by EPA, and the use of BMPs.

***Response:***

A paragraph has been added to the Introduction and Executive Summary of the plan clarifying how it will interact with other documents. The Council has also noted your feelings on the voluntary aspects of the plan.

2. The commentor felt that the proposed budget for implementing the plan is somewhat low. It was also noted that there needs to be some type of document (Memorandums of Understanding) or Agreement written up between the state and the federal agencies or we will not get cooperation from the federal government. Finally, the remediation issue needs to be addressed quickly as there are many problems existing in this area. The public should not have to pay for cleanup. More needs to be done to prevent these problems from occurring.

***Response:***

This issue of remediation and liability needs to be addressed in separate legislation which is being developed by a subcommittee to address the remediation issues of responsible parties. Upon completion, the Bill will be reviewed by the full Council and submitted to the legislature. In drafting this Bill, the Council will take your comments into account. Also, the issue of funding has not been completely determined, and the amount detailed in Enclosure II is just an estimate.

3. A written comment was submitted which included Material Safety Data Sheet for Sanafoam<sup>®</sup> Vaporooter<sup>®</sup> II.

***Response:***

The Council has taken your comment under consideration.



### ***Pocatello Public Hearing***

1. Some positive aspects of the plan listed by this commentor included: proposed educational programs on ground water, increased funding for monitoring, encouragement for local governments to develop ground water contamination prevention programs. The plan proposes ground water standards, but these standards are needed now. Also the plan needs to incorporate preventative management triggers, instead of waiting until health standards are exceeded. The plan does not integrate the Federal Sole Source Aquifer Program. The plan fails to give guidance on how the programs will be funded. Finally, the plan lacks a schedule to implement any of the new programs.

#### ***Response:***

Ground Water Quality Regulations are in the process of being developed by IDHW-DEQ. They will undergo a public review and comment process once completed to the draft stage.

The Ground Water Council has chosen to look at trends rather than using single number preventative action limits to trigger a corrective action before a standard is reached. The concept of a trend will be developed further in the Ground Water Quality Regulations. The following statement will also be added to the rationale for Policy I-D, Ground Water Quality Standards, "Will not ignore obvious man-made chemicals which are not naturally found in ground water."

The state Ground Water Quality Plan and the Federal Sole Source Designation Program are two different programs. The Ground Water Quality Plan looks at protection of ground water as a resource, while the federal program looks at ground water as a drinking water source. The Council did not want to incorporate federal programs into a state program as this could bring federal officials into state issues. The Council will add language clarifying the difference in the two programs.

The target dates for implementing new programs and funding mechanisms cannot be finalized until the amount of funding has been established and approved by the legislature.

2. Policy IV-C, Local/State Consistency, should remain as worded in the draft Idaho Ground Water Quality Plan.

#### ***Response:***

Due to comments requesting clarification of this policy, the Council has reworded Policy IV-C, Local/State Consistency, to read, "The policy of the state of Idaho is that local government assist in the implementation of the Ground Water Quality Plan under the authorities given them in the Idaho State Constitution and the Idaho Code. Local government may provide ground water protection through mechanisms appropriate to their authority to address local concerns and needs. Such mechanisms should be consistent with state laws and the Ground Water Quality Plan. Further, such local mechanisms should not impose duplicate permitting requirements on the public." The rationale and implementation portions of this policy, have also been reworded to coincide with this policy.

3.1 The commentor felt that more emphasis should be placed on best available technologies, instead of just best available methods. A question was also raised about the exact definition of “maximum extent practical”.

***Response:***

The Council chose to not use the term best available technology to avoid confusion with the Clean Water Act and surface water regulations which utilize best available technologies. The EPA has also specifically defined best available technologies for use in surface water situations. Since the term has traditionally been used in relationship with surface water issues, the term was changed to reflect ground water. The difference between best available methods and best available technologies will further be stated in the plan under Policy I-C, Categorization of Ground Water, the implementation section on page 24.

3.2 Will ground water standards be adopted that are above and beyond the current EPA standards?

***Response:***

Ground Water Quality Regulations are in the process of being drafted; however, whether or not they will have standards above and beyond the EPA standards has not yet been determined.

3.3 In both the mining and agricultural feedback process, how will people be moved from the voluntary approach to the mandatory approach? Also, how much say will the public have in developing the “management strategy” for all phases of mining.

***Response:***

Detailed flow charts have been added to the plan in order to better show the processes of the feedback loop. The implementation portion of Policy II-C calls for the development of further regulations for those mining issues not already addressed. Any regulations which are developed in the future will go through the public notice and comment process which provides an opportunity to make recommendations about specific mining issues.

3.4 Support was given for maintaining Policy IV-C, Local/State Consistency, as it appears in the draft plan.

***Response:***

See response to comment 2.

3.5 In the area of remediation, the commentor favored a State Superfund Program which would fund remediation when the responsible parties cannot be identified.

***Response:***

The Council did not feel that the issue of responsible parties and determination of liability could adequately be addressed in the plan, thus they will be drafting a bill to specifically address the issue. In drafting this bill, your comments will be noted.

## ***Twin Falls Public Hearing***

1.1 On page 29, Policy II-A, the statement, “to meet the concerns of those affected,” should be added to the policy.

### ***Response:***

Policy II-A, Prevention of Ground Water Contamination, is taken directly from Idaho Code §39-102, which states the following goal of the ground water quality protection act, “It is the policy of the state to prevent contamination of ground water from any source to the maximum extent practical.” This was the legislators’ choice of words to express their intent. The Council followed the direction given by the legislature on terminology.

2.1 Confusion was noted as to what exactly is meant by the statement on page 27, “Nor is it the intent of the Council to initiate preventative action limits”.

### ***Response:***

The Ground Water Council has chosen to look at trends rather than using single number preventative action limits to trigger corrective action before a standard is reached. The concept of a trend will be developed further in the Ground Water Quality Regulations. The following statement will also be added to the rationale for Policy I-D, Ground Water Quality Standards, “Will not ignore obvious man-made chemicals which are not naturally found in ground water.”

3.1 The speaker related many examples of wells which needed replacing, and problems which he had encountered in the well drilling industry. He also noted that it may be valuable to have someone with expertise in this field give input on developing regulations concerning these issues.

### ***Response:***

The Council has taken note of your comment.

4.1 The commentor noted page 105, which discusses land applied waste and wastewater. The commentor was concerned about how the level of waste applied is determined. He stressed that this is the best means of disposing of wastes.

### ***Response:***

The Council has taken note of your comment.

5.1 Best available technologies should be emphasized instead of best available methods. Incentives for using innovative technologies should also be emphasized.

### ***Response:***

The Council chose not to use the term best available technology to avoid confusion with the Clean Water Act and surface water regulations which utilize best available technologies. The EPA has also specifically defined best available technologies for use in surface water situations. Since the term has traditionally been used in relationship with surface water issues, the term was changed to reflect ground water. The difference between best available methods and best available technologies will further be stated in the plan under Policy I-C, Categorization of Ground Water, the implementation section on page 24.

5.2 Will the state adopt standards which are above and beyond the current EPA standards?

***Response:***

Ground Water Regulations are in the process of being drafted; however, whether or not they will have standards above and beyond the EPA standards has not yet been determined.

5.3 Confusion was stated as to how the feedback process as mentioned in the agricultural and mining policies will work. Also will the public have any say in the development of “management strategies” for the phases of mining.

***Response:***

Detailed flow charts have been added to the plan in order to better show the processes of the feedback loop. The implementation portion of Policy II-C calls for the development of further regulations for those mining issues not already addressed. Any regulations which are developed in the future will go through the public notice and comment process which provides an opportunity to make recommendations about specific missing issues.

6.1 The comment was made that the quantity of water is equally as important as the quality of water in this area.

***Response:***

The plan only addresses quality issues, and this has been clarified by adding language to the Executive Summary of the plan. However, the Council also realizes your concern in this area.

***Boise Public Hearing***

1.1 What is the baseline against which future standards will be measured? Will it be assumed that all constituents are zero, or will the fact that certain constituents may be present naturally be taken into account?

***Response:***

The Council acknowledged this comment and passed it on to the IDHW-DEQ staff working on the ground water quality standards.

1.2 Feels that Policy II-B, Agricultural Chemical Nutrient Management, which states that contaminants should not move below the root zone, has good intentions but will be difficult to implement.

***Response:***

The Council has taken note of your comment.

1.3 In Policy VI-B, Liability for Costs of Remediation, farmers who follow pesticide labels and use BMPs as well as businesses following all statutes should be exempt from remediation costs.

***Response:***

The Council did not feel that the issue of responsible parties and determination of liability could be adequately be addressed in the plan, thus they will be drafting a bill to specifically address this issue. In drafting this bill, your comments will be noted.

2. These comments are identical to those in Exhibit 29, Points 1-3.

3. The plan covers nearly every potential source of contamination, but lacks the power to enforce.

***Response:***

The plan is not an enforcement document, but a management document to provide direction for what should be done in ground water protection. Enforcement capabilities are addressed in existing regulations and any future regulations that will be developed.

4.1 Policy II-B, Agricultural Chemical and Nutrient Management, and II-C, Mining, are unclear in their discussion of feedback loops. Also, at some points mandatory enforcement will be needed in these areas and regulations will be needed to give this capability.

***Response:***

Detailed flow charts have been added to the plan in order to better show the processes of the feedback loop. The plan is a management document to provide direction for what should be done in ground water protection. Enforcement capabilities are addressed in existing regulations and any future regulations that will be developed.

4.2 Policy IV-B, Local/State Government Interaction, should provide more monies to local governments to help enforce policies which relate to them.

***Response:***

The issue is addressed in Idaho Code and will also be concluded in the funding narrative that goes to the legislature. The Council agrees that the funding mechanisms should be made available to provide for local funding of the Ground Water Quality Protection Plan, and a statement clarifying this will be added to the implementation items for Policy IV-B, Local/State Government Interaction.

4.3 Policy IV-C, Local/State Government Interaction, is a very critical policy and should remain as written in the plan.

***Response:***

Due to comments requesting clarification of this policy, the Council has reworded Policy IV-C, Local/State Consistency to read, "The policy of the state of Idaho is that local governments assist in the implementation of the Ground Water Quality Plan under the authorities given them in the Idaho State Constitution and the Idaho Code. Local government may provide ground water protection through mechanisms appropriate to their authority to address local concerns and needs. Such mechanisms should be consistent with state laws and the Ground Water Quality Plan. Further, such local mechanisms should not impose duplicate permitting requirements on the public." The rationale and implementation portions of this policy, have also been reworded to coincide with the policy.

5. Commentor suggests that all "shoulds" in the plan be changed to "shalls", and "woulds" to "wills" to create a stronger plan.

***Response:***

The Ground Water Council chose by vote to use "should" and "would" in the plan because the Ground Water Quality Protection Act of 1989 says that the plan should make recommendations not mandates.

6.1 There is no explanations of the techniques involved in BMPs, best available methods and best practical methods.

***Response:***

A more detailed flow chart showing the processes involved in BMPs has been developed and included in the plan. Also, the definitions and explanations of best available methods and best practical methods have been more clearly stated.

6.2 The plan states that trends will be used to indicate the need to modify BMPs. What is the definition of a trend? This appears to be an unattainable trigger which would trip the feedback loop into action.

***Response:***

The concept of a trend will be developed further in the Ground Water Quality Regulations.

6.3 Ground water quality standards need to be developed simultaneously with the finalization of the plan.

***Response:***

Ground Water Quality Regulations which will include the numerical standards are in the process of being developed.

***Coeur d'Alene Public Hearing***

1. Commentor stated that the City of Coeur d'Alene injects large amounts of chemicals into the sewage system which could leach out and affect the aquifer. Also made the request that large fines be set for potentially responsible parties.

2. In Policies IV-B, Local/State Government Interaction, and IV-C, Local/State Consistency, is very important that local governments have the ability to implement programs. Thus, support was given for these two policies as written. The commentor also felt that the Well Head Protection program should be a more important part of these sections.

***Response:***

Due to the comments requesting clarification of this policy, the Council has reworded Policy IV-C, Local/State Consistency to read, "The policy of the state of Idaho is that local governments assist in the implementation of the Ground Water Quality Plan under the authorities given them in the Idaho State Constitution and the Idaho Code. Local government may provide ground water protection through mechanisms appropriate to their authority to address local concerns and needs. Such mechanisms should be consistent with state laws and the Ground Water Quality Plan. Further, such local mechanisms should not impose duplicate permitting requirements on the public." The rationale and implementation portions of this policy on page 36, have also been reworded to coincide with the policy. Policy IV-B, has remained basically unchanged. The Council also acknowledges your comment concerning the Well Head Protection Program.

3. See Exhibit 8 of the written comments.

4. Concern was voiced about Policy I-C, Categorization of Ground Water. The commentor felt that drinking water deserved more protection than best practical methods offered.

***Response:***

The concept of best practical methods has been more clearly defined to show exactly what is meant by this phrase. The Drinking Water categorization is only meant as a strategy to manage certain ground waters which are used for drinking water which are not as susceptible to contamination. It does not mean that all ground waters used for drinking water will only be managed with best practical technologies.

4.2 The commentor questions the use of voluntary compliance in Policies II-B, Agricultural Chemical and Nutrient Management, and II-C, Mining. It was mentioned that it may be much easier simply to put the mandatory programs into place to start with.

***Response:***

The Ground Water Council, after again considering this issue, disagrees with the prospect of creating only mandatory enforcement measures. The voluntary approach is intended as the first step in the enforcement approach. The voluntary approach includes incentive programs which are the key to making this approach work. If voluntary approaches are ineffective, then mandatory enforcement will be implemented.

5.1 Policy I-C, Categorization of Ground Water, does not emphasize best available technologies, but instead talks about best management practices.

***Response:***

The Council chose not to use the term best available technology to avoid confusion with the Clean Water Act and surface water regulations which utilize best available technologies. The EPA has also specifically defined best available technologies for use in surface water situations. Since the term has traditionally been used in relationship with surface water issues, the term was changed to reflect ground water. The difference between best available methods and best available technologies will further be stated in the plan under Policy I-C, Categorization of Ground Water, the implementation section on page 24.

5.2 Support was given for Policy IV-B, Local/State Interaction, and Policy IV-C, Local State Consistency, as it appears in the draft plan.

***Response:***

Due to comments requesting clarification of this policy, the Council has reworded Policy IV-C, Local/State Consistency, to read, "The policy of the state of Idaho is that local governments assist in the implementation of the Ground Water Quality Plan under the authorities given them in the Idaho State Constitution and the Idaho Code. Local government may provide ground water protection through mechanisms appropriate to their authority to address local concerns and needs. Such mechanisms should be consistent with state laws and the Ground Water Quality Plan. Further, such local mechanisms should not impose duplicate permitting requirements on the public." The rationale and implementation portions of this policy, have also been reworded to coincide with the policy. Policy IV-B has remained basically unchanged.

6. Numerous comments were given regarding problems with iron bacteria in the ground water which are seriously affecting the drinking water quality in the area.

***Response:***

The Council acknowledges the many comments it has received on this issue. However, the Ground Water Quality Plan does not specifically address this issue. The DEQ Coeur d'Alene Field Office has jurisdiction over public drinking water systems in that area. The comments have been forwarded to that office, which has the authority to deal with the problem.

***Lewiston Public Hearing***

1.1 The commentor noted some confusing aspects of the categorization process and what standards will be used for each one.

***Response:***

The standards may vary slightly based on the category which the ground water is placed in, but the main purpose of the plan is to maintain one set of Ground Water Quality Standards throughout the state for consistency. The term standards will be defined in the glossary of the plan.

1.2 The plan does not adequately address mining issues.

***Response:***

The implementation portion of Policy II-C calls for the development of further regulations for those mining issues not already addressed. Any regulations which are developed in the future will go through the public notice and comment process which provides an opportunity to make recommendations about specific mining issues.

1.3 The technical review committee established on page 56 in the Ground Water Quality Monitoring Program includes hydrologists from various state agencies and a member from affected industries, but it does not include a member of the public to give public input.

***Response:***

The wording in the Ground Water Data Technical Review Committee Section has been expanded to include at least one member from industry and one member from the general public.

2.1 Commentor stated that regulations regarding mining and exploratory drilling need to be developed.

***Response:***

See Response to 1.2 above.

3. Commentor suggested that all "shoulds" in the plan be changed to "shalls" and "woulds" to "wills" to create a stronger plan, especially as pertains to mining.

***Response:***

The Ground Water Council chose by vote to use "should" and "would" in the plan because the Ground Water Quality Protection Act of 1989 says that the plan should make recommendations not mandates.



4. The commentor noted that the issue of spills occurring along roads and rivers was not addressed anywhere in the plan.

***Response:***

The Council has taken your comment under consideration.

5. The plan does not integrate the Federal Sole Source Aquifer Program and other state and federal programs, or suggest the definitive legislation needed to force the federal government to change its ways.

***Response:***

The state Ground Water Quality Plan and the Federal Sole Source Designation Program are two different programs. The Ground Water Quality Plan looks at protection of ground water as a resource while the federal program looks at ground water as a drinking water source. The Council did not want to incorporate federal programs into a state program as this could bring federal officials into state issues. Also the issue of federal consistency is addressed in Policy IV-D, Federal Consistency.

## AGRICULTURAL CHEMICAL STORAGE AND HANDLING

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<b>1. AGRICULTURAL CHEMICAL STORAGE AND HANDLING</b>  <b>(any site or facility upon which agricultural chemicals are being stored which may include commercial, on-farm, residential locales)</b>	Leakage or spills from storage containers and tanks as well as agrichemical-laden surface water runoff at facilities that lack adequate containment measures.	<ol style="list-style-type: none"> <li>1. FIFRA; label requirements. EPA. IDA.</li> <li>2. Idaho state pesticide use regulations (Section 15) IDA.</li> <li>3. Local fire code and building ordinances. State and local fire marshall.</li> <li>4. Recommended guidelines presented in federal and state documents, agricultural journals and from the agrichemical industry.</li> <li>5. UST regulations, EPA, DEQ.</li> <li>6. Drinking water standards for community and non-community water supply wells. EPA, DEQ, IDWR.</li> <li>7. RCRA; contaminated soils from commercial applicator storage related spills. EPA, IDA, DEQ.</li> </ol>	<ol style="list-style-type: none"> <li>1. Evaluate existing information and develop standardized guidelines. IDA, Ground Water Review team (GWR). Policy II-B.</li> <li>2. Broaden scope of applicability Section 15 regulations. IDA. Policy II-B.</li> <li>3. Develop state regulations for containment measures including SPCC plans at larger facilities. IERC.</li> <li>4. Develop standardized guidelines for containment design. IDA. Policy II-B.</li> <li>5. EPA to finalize storage regulations (CFR Part 165). EPA. Policy II-B.</li> <li>6. Develop education and information dissemination programs at all levels. SCS, University of Idaho, CES, DEQ, IDA, Industry, IDWR. Policy II-B.</li> <li>7. Expand wellhead protection. IDA, DEQ, local EPA, IDWR. Policy II-A.</li> <li>8. Development of a State Pesticide Management Plan (SMP). IDA lead. Policy II-B.</li> <li>9. Coordinate siting of agricultural chemical storage facilities with local planning and zoning entities. IDA, DEQ, EPA. Policy II-B.2.</li> </ol>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<p><b>2. AGRICULTURAL CHEMICAL MIXING AND LOADING FOR APPLICATION</b></p> <p>(includes both permanent and occasionally used sites where agricultural chemicals are prepared for application; includes commercial and on-farm locales)</p>	<p>Uncontained leakage and spills during mixing and loading, activities, and backsiphoning into water source.</p>	<ol style="list-style-type: none"> <li>1. Recommended guidelines presented in federal and state documents, agricultural journals and from the agrichemical industry.</li> <li>2. RCRA reinstate recycling and reuse provisions. EPA, IDA, DEQ, Industry.</li> <li>3. FIFRA; Label requirements for missing procedures. EPA, IDA.</li> </ol>	<ol style="list-style-type: none"> <li>1. Evaluate existing information and develop standardized guidelines. IDA, GWR team. Policy II-B.</li> <li>2. Develop educational and informational programs at all levels. SCS, University of Idaho, CES, DEQ, IDA, Industry. Policy II-B.</li> <li>3. Develop state regulations/guidelines for proper mixing and loading procedures. EPA, Industry, University of Idaho. Policy II-B.</li> <li>4. Develop design standards for mixing and loading areas (i.e., containment, impervious pads, closed mixing). IDA, Industry, EPA, DEQ. Policy II-B.</li> <li>5. EPA to finalize mixing and loading regulations. (CFR Part 165) EPA. Policy II-B.</li> <li>6. Expand wellhead protection at all levels. DEQ, IDA, Local EPA, IDWR. Policy II-A.</li> <li>7. Development of SMP. IDA lead. Policy II-B.</li> </ol>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<p><b>3. AGRICULTURAL CHEMICAL APPLICATION/ AGRICULTURAL PRACTICES</b></p> <p>(application methods, rates and timing of agricultural chemical and associated cultural practices such as crop rotation, tillage, and irrigation which influence concentrations and mobility of applied agricultural chemicals)</p>	<p>Infiltration of agricultural chemicals or their chemical constituents below the crop root zone, or entry by direct pathways such as poorly constructed wells and surface waters which are hydrologically connected to ground water.</p>	<ol style="list-style-type: none"> <li>1. BMPs, SCS: Pest, Nutrient, and Irrigation water management plans, conservation cropping practice. SCC lead and technical committee.</li> <li>2. SCS, University of Idaho, CES, and Bureau of Reclamation irrigation management guidelines.</li> <li>3. Recommended guidelines presented in federal and state documents agricultural journals, and from the agrichemical industry.</li> <li>4. FIFRA; labeling requirements: cultural practices restriction (i.e., tillage). EPA, IDA, University of Idaho.</li> <li>5. IDA; Chapter 34, Pesticide Law. IDA.</li> <li>6. 1990 Farm Bill Water Quality Plan Provisions. USDA, University of Idaho, DEQ, IDA, EPA, SCD.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop a cooperative agreement between local Soil Conservation Districts and an operator that provides for developing a water quality management plan that addresses surface water and ground water pollution sources and satisfies all applicable state and federal requirements for water quality protection which includes the implementation of BMPs. Local SCDs. Policy II-B.</li> <li>2. Develop and update ground water quality protection BMP's for agricultural chemical application/cultural practices. SCC lead &amp; Technical committee. Policy II-B.</li> <li>3. Coordinate irrigation programs and other BMPs within CES, SCS, Bureau of Reclamation, IDWR. Policy II-B.</li> <li>4. Develop and implement a SMP. IDA, DEQ, EPA. Policy II-B.</li> <li>5. Address ground water quality protection in the revision of the APAP. SCC, lead and State Agricultural Water Quality Advisory Committee. Policy II-B.</li> <li>6. Encourage expansion of SAWQP for ground water projects. IDA, Industry, DEQ, Policy II-B.</li> </ol>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<b>3. AGRICULTURAL CHEMICAL APPLICATION/ AGRICULTURAL PRACTICES</b>  <b>(Continued)</b>		<p>7. IDWR-well construction standards, well driller licensing.</p> <p>8. IDWR-water rights season of diversion.</p>	<p>7. Develop informational, educational and research programs (especially promote development and distribution of ground water protection handbooks: Pest, Nutrient, and Irrigation Management) which address ground water protection from agricultural chemical spills. All entities. Policy II-B.</p> <p>8. Accelerate and continue federal projects such as USDA Ground water demonstration projects. USDA lead, SCS, CES, ASCS, SCD, IDA, Industry, IDWR, and DEQ. Policy II-B.</p> <p>9. Encourage land user participation in SCD and other local programs that may provide BMP planning, implementation and technical assistance. All entities. Policy II-B.</p> <p>10. Encourage expansion and continuation of privately (i.e. Farm Bureau) and publicly sponsored ground water quality programs including pesticide use information, vulnerability mapping and others. All entities. Policy II-B.</p>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<b>4. CAFO's</b>  <b>(NPDES permitted and nonpermitted concentrated animal feeding operations of all sizes and all animals excluding aquaculture; i.e., dairies, feedlots, hog operations, etc.)</b>	Infiltration and runoff from CAFO's with inadequately designed feedlots and waste storage structures.	<ol style="list-style-type: none"> <li>1. EPA; NPDES permit, inspection. EPA, DEQ.</li> <li>2. Idaho waste management guidelines for concentrated animal feeding operations. DEQ, technical advisory committee.</li> <li>3. Regulations; compliance checks and complaint response relating to Idaho water quality standards. DEQ.</li> <li>4. Technical assistance for waste management system evaluation and design. ASCS, SCS, SCD.</li> <li>5. Financial/cost share assistance for implementation. ASCS, SCS-RCD, SAWQP.</li> <li>6. Rules and regulations governing grade A pasteurized milk program. IDA.</li> </ol>	<ol style="list-style-type: none"> <li>1. SCD's should include an inventory of statewide CAFO operations in their five year program. SCD. Policy II-B.</li> <li>2. Establish a monitoring and research program to determine the degree of CAFO impacts on ground water quality. CES/DEQ, IWRRI. Policy II-B.</li> <li>3. Research to identify alternative methods of waste treatment and management. University of Idaho, SCS, DEQ, Industry. Policy II-B.</li> <li>4. Develop informational and educational programs for ground water protection from CAFO's at all levels. Policy II-B.</li> <li>5. Provide additional personnel for technical assistance to design and implement CAFO waste management systems. SCS, DEQ, IDA. Policy II-B.</li> <li>6. Provide financial/cost share assistance for implementation of CAFO waste management systems. ASCS, SCS-RCD, SAWQP. Policy II-B.</li> </ol>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<b>4. CAFO's</b>  <b>(Continued)</b>		<p>7. IDA dairy laws for grade B operations - IDA Dairy Bureau, SCS, CES, private consultants, DEQ.</p> <p>8. IDWR water right permitting.</p>	<p>7. Address the ground water quality protection shortcomings of the NPDES permit. DEQ, EPA. Policy II-B.</p> <p>8. Coordinate requirements of all agencies into CAFO management systems. SCC. Policy II-B.</p> <p>9. Expand and promote Idaho waste management guidelines for CAFO's to address ground water quality protection. DEQ lead. Policy II-B.</p>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<b>5. AGRICULTURAL CHEMICAL WASTE DISPOSAL</b>  <b>(CONTAINERS AND UNUSED PRODUCT)</b>  <b>(all commercial, on-farm, residential entities using agricultural chemicals)</b>	Improper disposal of agricultural chemical containers and unused product	<p>Containers:</p> <ol style="list-style-type: none"> <li>1. FIFRA label requirements. IDA, EPA.</li> <li>2. CES, EPA recommended practices. CES, IDA, DEQ.</li> <li>3. DEQ Regulations small generator/hazardous materials regulations. DEQ, district health, local governments.</li> <li>4. Household hazardous collection programs. DEQ, local government, industry.</li> </ol> <p>Unused Product:</p> <ol style="list-style-type: none"> <li>1. RCRA; disposal of hazardous wastes which apply to agricultural chemicals and unrinsed containers. DEQ, EPA.</li> <li>2. FIFRA label requirements. IDA, EPA.</li> <li>3. State authority for IDA to develop regulations (Chapter 34). IDA.</li> <li>4. Idaho's Rules and Regulations; construction and use of injection wells. IDWR, EPA.</li> </ol>	<ol style="list-style-type: none"> <li>1. Promote informational and educational programs to address proper disposal of agricultural chemical containers and unused product. At all levels. Policy II-B.</li> <li>2. Evaluate effectiveness of existing programs/regulations for ground water quality protection by appropriate agencies/industry. Ground water review team. Policy II-B.</li> <li>3. EPA to finalize disposal regulations (CFR Part 165). EPA. Policy II-B.</li> <li>4. Development of an SMP. IDA lead. Policy II-B.</li> </ol>



Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<p><b>6. AQUACULTURE WASTE MANAGEMENT PRACTICES</b></p> <p>(storage and handling of waste generated from the controlled cultivation of aquatic plants and animals)</p>	<p>Infiltration and wastewater runoff from inadequately constructed waste storage structures.</p>	<ol style="list-style-type: none"> <li>1. EPA; NPDES permit, inspection. EPA, DEQ.</li> <li>2. Technical assistance with facility design and operations from Idaho Aquaculture association, trade representatives, and publications. Industry.</li> <li>3. Idaho wastewater treatment requirements. DEQ.</li> <li>4. BMPs; system management.</li> <li>5. Public interest criteria of water rights. IDWR.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop design standards for waste storage ponds/lagoons. DEQ, SCS, IDA. Policy II-B.</li> <li>2. Develop educational and informational programs for aquaculture waste management practices at all levels. Policy II-B.</li> <li>3. Address the ground water quality protection shortcomings of the NPDES permit. DEQ, EPA. Policy II-B.</li> <li>4. Promote research to identify alternative methods of waste treatment and management. University of Idaho, DEQ, SCS, Industry. Policy II-B.</li> <li>5. Develop informational and educational programs for ground water protection from aquaculture practices. All levels. Policy II-B.</li> <li>6. Evaluate appropriateness of modifying the Idaho water quality storage and wastewater treatment requirements. DEQ lead. Policy II-B.</li> </ol>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<p><b>7. INJECTION WELLS AND OTHER UNDERGROUND DISPOSAL METHODS</b></p> <p>(wells or other methods used to dispose of irrigation tail water and other runoff water in which discharge is directly into the ground water or will likely migrate to the ground water)</p>	<p>Disposal of irrigation tail water or other runoff water which contains agricultural chemicals into unpermitted, poorly maintained, and improperly closed or unauthorized abandoned disposal wells, and lava tubes, fractured rock, gravel pits, etc.</p>	<ol style="list-style-type: none"> <li>1. Underground Injection Control (UIC) Program; exercises primacy that EPA granted Idaho in 1984 under the SDWA to regulate underground injection. IDWR, EPA.</li> <li>2. Idahos rules and regulations; construction and use of injection wells. IDWR, EPA.</li> <li>3. Idaho's well abandonment and well construction standards. IDWR, EPA.</li> <li>4. Operation Outreach; a program to educate injection well users, government officials and the public of alternatives to injection wells, as well as mitigation measures and proper abandonment procedures. IDWR, EPA.</li> </ol>	<ol style="list-style-type: none"> <li>1. Promote, develop and revise BMPs in regard to increasing water quality and decreasing water quantity of irrigation tail water and other runoff water entering injection wells and other disposal systems. SCC technical committee. Policy II-B.</li> <li>2. Continue to improve educational and informational efforts. IDWR, EPA. Policy II-B.</li> <li>3. Identify contributors responsible for low water quality injectate and require that they share responsibility with owner/operator when more than one person, party, or entity utilizes an injection well. IDWR. Policy II-B.</li> <li>4. Ascertain the effect of injection well use on ground water quality by obtaining support for research to determine the fate of contaminants entering the subsurface environment through injection wells. IDWR, University of Idaho, IFBF. Policy II-B.</li> <li>5. Develop guidelines and/or regulations for disposal systems that are not regulated under existing Policy II-B.</li> </ol>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<b>7. INJECTION WELLS AND OTHER UNDERGROUND DISPOSAL METHODS</b>  <b>(Continued)</b>			<p>6. Encourage land user participation in SCD and other local programs that may provide BMP planning, implementation, and technical assistance. SCD. Policy II-B.</p> <p>7. Evaluate and revise regulations as necessary to provide increased protection from injection wells and other disposal methods; strengthen compliance monitoring and enforcement efforts by obtaining support for increased well inspections, more detailed injectate characterization, emergency response capability, and penalties or well closure. IDWR, EPA.</p>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<b>8. AGRICULTURAL CHEMICAL SPILLS</b>  <b>(uncontained releases that occur during storage, handling, mixing, loading, and transportation of agricultural chemicals)</b>	<p>Infiltration of a release or its chemical constituents through the unsaturated zone, or entry by direct pathways such as poorly constructed wells and surface waters which are hydrologically connected to ground water.</p>	<ol style="list-style-type: none"> <li>1. Idaho hazardous materials incident command and response support plan. IERC.</li> <li>2. SARA, Title III. IERC.</li> <li>3. FIFRA; packaging. EPA.</li> <li>4. DOT; transportation requirements. DOT, IDT.</li> <li>5. RCRA; contaminated media from commercial spills/leaks. DEQ, EPA.</li> <li>6. Recently passed legislation addressing agricultural chemical spills.</li> <li>7. Recommended guidelines presented in federal and state documents, agricultural journals and from the agrichemical industry.</li> <li>8. IDWR well construction and injection well (UIC) program.</li> <li>9. IDWR well construction and Injection Well (UIC) Program.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop guidelines and/or regulations for those agricultural chemicals and quantities that are not regulated under existing programs. IDA, IDT. Policy II-B.</li> <li>2. Encourage beneficial uses of spilled material. IDA,DEQ. Policy II-B.</li> <li>3. Develop informational, educational, and research programs which address ground water protection from agricultural chemical spills. All levels. Policy II-B.</li> <li>4. Encourage the utilization of pertinent research results. All levels. Policy II-B.</li> <li>5. Upgrade IDWR programs.</li> </ol>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<b>9. URBAN/NONAGRICULTURAL USES</b>  <b>(roadside weed control, right-of-ways, golf courses, residential, commercial, etc.)</b>	Infiltration of agricultural chemicals, an ag chemical release, or its chemical constituents through the unsaturated zone; or entry by direct pathways such as poorly constructed wells, inadequate water system backsiphoning protection, improper cross connection, and surface waters which are hydrologically connected to ground water.	<ol style="list-style-type: none"> <li>1. FIFRA; labeling. IDA, EPA.</li> <li>2. IDA; Chapter 34, pesticide law (commercial applicators). IDA.</li> <li>3. Recommended guidelines presented in federal and state documents, agricultural journals, and from the agrichemical industry.</li> <li>4. Community awareness programs. IDA, CES, Industry.</li> </ol>	<ol style="list-style-type: none"> <li>1. Research studies to determine degree of ground water contamination in urban areas. DEQ, IDA. Policy II-B.</li> <li>2. Research studies to identify alternative methods of urban and nonagricultural uses of agricultural chemicals. CES, Industry, EPA. Policy II-B.</li> <li>3. develop informational, educational, and training programs for commercial and residential users. All entities. Policy II-B.</li> <li>4. Conduct urban pesticide sales study. IDA. Policy II-B.</li> <li>5. Increased development of outreach programs for information and education. CES, IDA, EPA. Policy II-B.</li> </ol>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<p><b>10. LAND APPLIED WASTE AND WASTEWATER</b></p> <p>(all waste management operations which employ land application for the benefit of crop production.</p> <p>(i.e., aquaculture waste, sludge and septage, animal waste, plant by-products, etc.)</p>	<p>Application of waste and wastewater in excess of crop needs.</p>	<ol style="list-style-type: none"> <li>1. EPA; NPDES permit. EPA, DEQ.</li> <li>2. Idaho water quality standards and wastewater treatment requirements. DEQ, technical advisory committee.</li> <li>3. Idaho wastewater land application permit regulations. DEQ.</li> <li>4. USDA SCS, agricultural waste management. FOTG. USDA SCS.</li> <li>5. IDWR-water right permit requirements.</li> </ol>	<ol style="list-style-type: none"> <li>1. Expand guidance, rules and regulations, for land application of waste and wastewater management from processing plants, CAFO's and aquaculture operations and other nonregulated land application activities to protect ground water quality. DEQ, EPA, IDA. Policy II-B.</li> <li>2. Refine BMPs. SCC technical committee. Policy II-B.</li> <li>3. Develop an MOU between appropriate federal/state/local agencies regarding agency roles and responsibilities for land applied waste and wastewater. Policy II-B.</li> <li>4. Address the ground water quality protection shortcomings of the NPDES Permit. DEQ, EPA. Policy II-B.</li> <li>5. Research to identify alternative methods of land application. CES, DEQ, IDA. Policy II-B.</li> <li>6. Develop informational and educational programs for ground water quality protection from land applied waste and wastewater. All levels. Policy II-B.</li> </ol>

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<b>11. AGRICULTURAL WASTES DISPOSAL</b>  (agricultural wastes not addressed in the Agricultural Chemical Waste Disposal, Injection Wells and Other Disposal Methods, and Land Applied Waste and Waste-water categories; for example, treated seed, animal carcasses and crop residue)	Infiltration of contaminants associated with such wastes	1. IDHW Idaho state solid waste regulations. DEQ, local government.  2. RCRA, Subtitle D. DEQ, EPA.  3. Guidelines/BMPs. IDA.  4. UIC permits and regulations, IDWR.	1. Develop educational and informational programs which address proper disposal of agricultural wastes. CES, IDA. Policy II-B.  2. Evaluate effectiveness of existing programs/regulations for ground water quality protection by appropriate agencies/industry. IDA, DEQ, CES, EPA. Policy II-B.  3. Expand and develop guidelines for ground water quality protection from agricultural wastes. DEQ, IDA, CES. Policy II-B.

Potential Agricultural Chemical Source	Ground Water Quality Impact Concerns	Existing Programs Pertinent to Source	Recommendations to Address Program Deficiencies/Agricultural Chemical Policy Number
<b>12. WELL CONSTRUCTION AND ABANDONMENT</b>	Contamination of ground water via improperly constructed or abandoned wells.	<ol style="list-style-type: none"> <li>1. Idaho Code and IDWR rules and regulations governing well construction standards. IDWR.</li> <li>2. Idaho code and IDWR rules and regulations governing water well driller's licenses. IDWR.</li> <li>3. IDHW Regulations for individual subsurface sewage disposal systems. DEQ.</li> <li>4. IDHW Drinking water regulations for public systems. DEQ.</li> </ol>	<ol style="list-style-type: none"> <li>1. Update IDWR rules and regulations to better address water mixing between aquifers and siting of wells near potential contamination sources. IDWR. Policy II-B.</li> <li>2. Increase support for education of IDWR regulatory personnel. IDWR. Policy II-B.</li> <li>3. Expand public and driller awareness and cooperation through increased communication with IDWR ground water personnel. IDWR. Policy II-B.</li> <li>4. Increase support for field inspections for well construction and locating improperly abandoned wells. IDWR. Policy II-B.</li> </ol>



APPENDIX B — TABLE 2  
THREE PATHWAYS OF FEEDBACK LOOP APPROACH

FIGURE 1

"PREVENTION FLOWCHART"

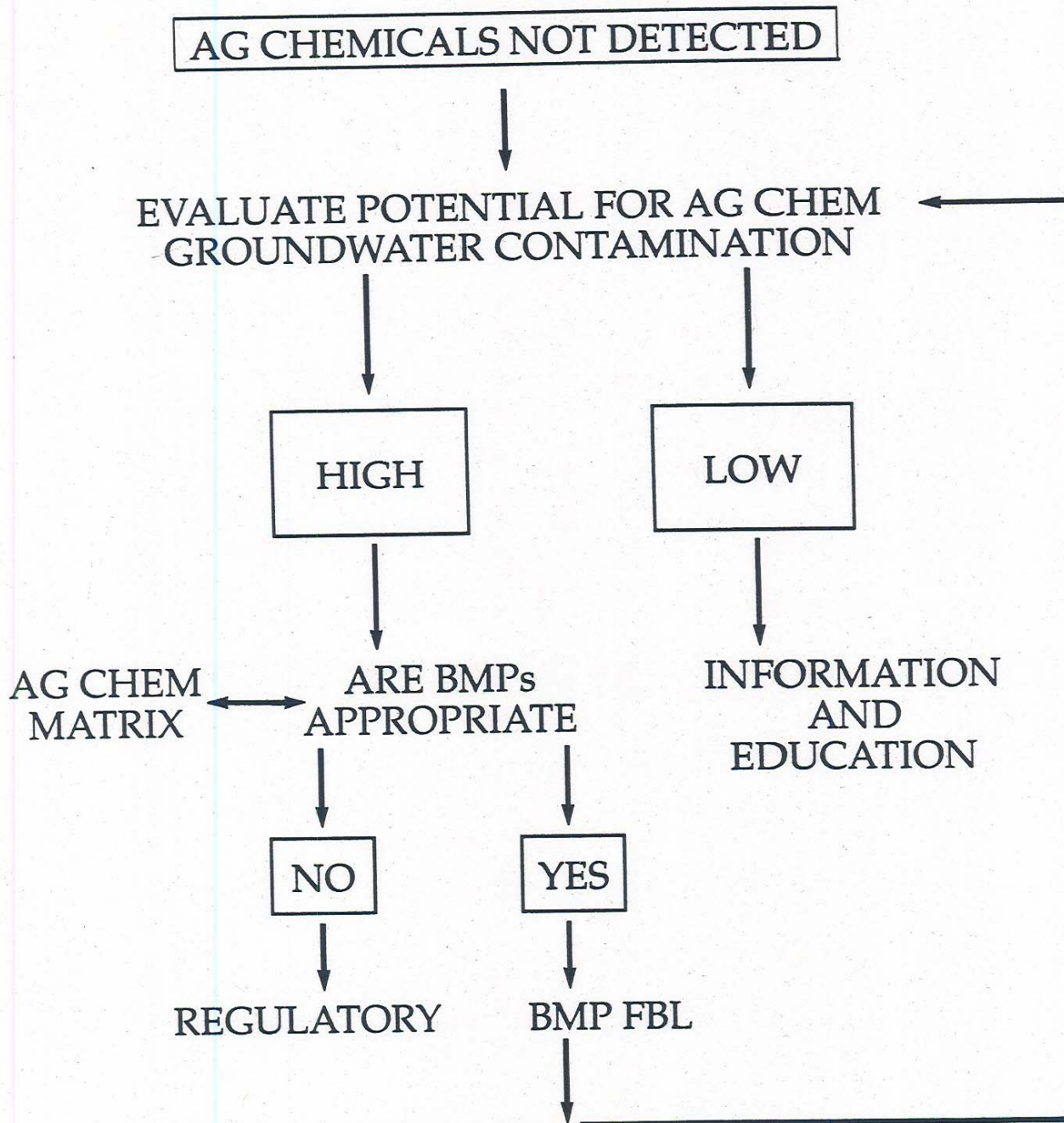
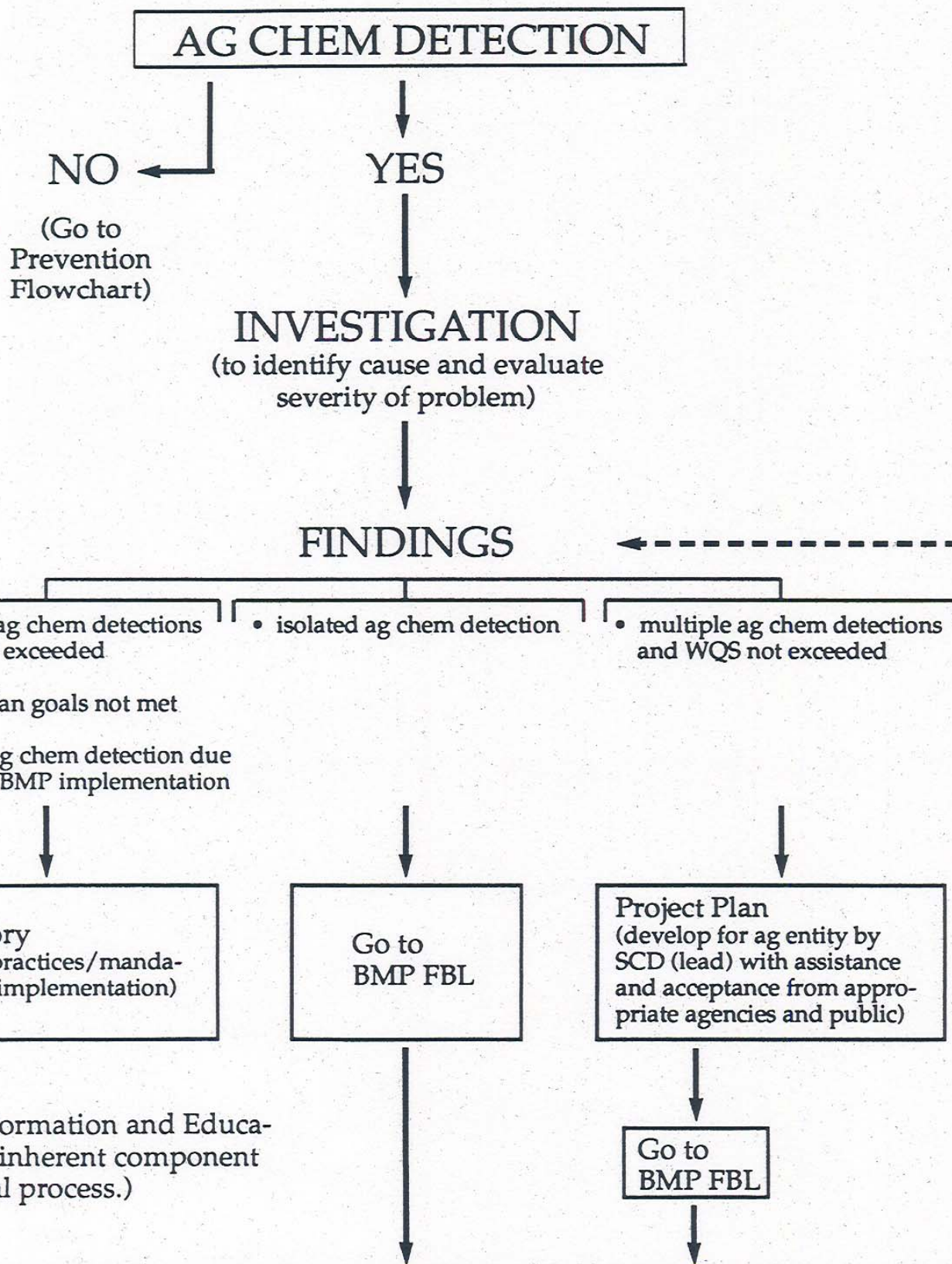


FIGURE 2

"RESPONSE FLOWCHART"



(Note: Information and Education is an inherent component of the total process.)



FIGURE 3

"BMP FEEDBACK LOOP"

BMP DEVELOPMENT/IMPROVEMENT  
(Research)

ON-SITE AND IMPLEMENTATION  
AND MAINTENANCE

ENVIRONMENTAL MONITORING  
AND EVALUATION  
(Research)

GOALS OF BMP/PROJECT PLAN  
BEING MET

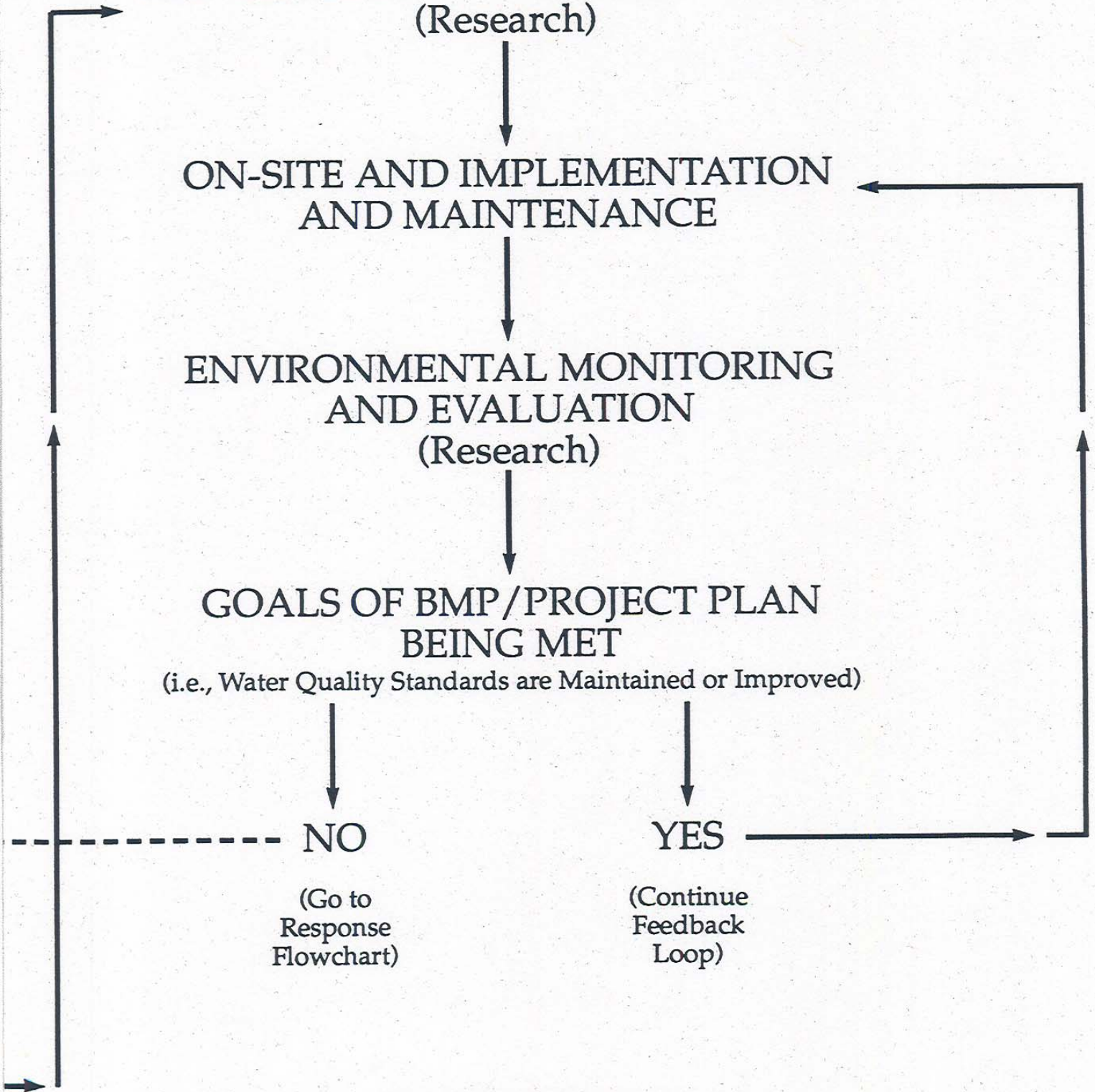
(i.e., Water Quality Standards are Maintained or Improved)

NO

(Go to  
Response  
Flowchart)

YES

(Continue  
Feedback  
Loop)





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