
The Upper Snake Rock Implementation Plan 2001

Prepared by:

Dr. Balthasar B. Buhidar, Ph.D.

With assistance from
Robert Sharpnack and Sean Woodhead
of the
Idaho Department of Environmental Quality-Twin Falls Regional Office
601 Pole Line Road, Suite 2
Twin Falls, Idaho 83301

And the major water user industries:

Aquaculture Industry
Food Processors Industry
Municipalities Industry
Confined Animal Feeding Operations Industry
Hydroelectric Power Industry
Irrigated Agriculture Industry
Grazing Industry
Recreation Industry

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PREPARERS AND CONTRIBUTORS

The development of *The Upper Snake Rock Implementation Plan 2001* was a monumental task that has brought together the Idaho Department of Environmental Quality and eight (8) major water user industries in the Upper Snake Rock subbasin. The implementation plan is an outgrowth of the Billingsley Creek TMDL, the Mid-Snake TMDL, and the Upper Snake Rock TMDL for point and nonpoint sources. The express purpose is to restore the beneficial uses and/or water quality standards of 303(d) streams in the Upper Snake Rock subbasin. Oversight and preparation of the plan was done by IDEQ-TFRO with assistance from State designated agencies for specific water user industries. Dr. Balthasar B. Buhidar, Ph.D. prepared the overall document with technical assistance from Rob Sharpnack and Sean Woodhead. State designated agencies included the following:

| <u>DESIGNATED AGENCY</u> | <u>CONTACT</u> | <u>INDUSTRY</u> |
|---------------------------------------|--------------------------|----------------------|
| Idaho Department of Agriculture | Dr. Phil Mamer | Aquaculture BMPs |
| Idaho Department of Lands | Howard K. Kestie | State lands |
| Idaho Soil Conservation Commission | Arnie Wetzstein | Agriculture |
| Idaho Soil Conservation Commission | Arnie Wetzstein | Private grazing |
| Idaho Dptmnt of Environmental Quality | Dr. Balthasar B. Buhidar | All other activities |

The Idaho Department of Environmental Quality-Twin Falls Regional Office received additional technical assistance from the following:

| <u>AGENCY/ORGANIZATON</u> | <u>CONTACT</u> | <u>INDUSTRY</u> |
|--------------------------------------|---------------------|----------------------|
| Mid-Snake Watershed Advisory Group | Larry Pennington | Multiple industries |
| Twin Falls Chamber of Commerce | David Mead | Multiple industries |
| Irrigators Water Quality Committee | Clarence Robison | Agriculture |
| Twin Falls Canal Company | Vince Alberdi | Agriculture/Grazing |
| North Side Canal Company | Ted Diel | Agriculture/Grazing |
| Clear Springs Foods, Inc. | Dr. Randy MacMillan | Aquaculture |
| Idaho Aquaculture Association | Mark Daily | Aquaculture |
| University of Idaho Extension | Gary Fornshell | Aquaculture |
| Food Processors Committee | Mike Gann | Food Processors |
| Municipality Committee | Gary Young | Municipalities |
| U.S. Environmental Protection Agency | Carla Fromm | Multiple industries |
| USDA/NRCS-Twin Falls | Rich Yankey | Agriculture/Grazing |
| Idaho Department of Fish and Game | Tom Frew | Aquaculture |
| Idaho Department of Fish and Game | Chuck Warren | Aquaculture |
| Idaho Power Company | Paul Schinke | Hydropower |
| Idaho Power Company | Brian Hoelscher | Hydropower |
| Bureau of Land Management | Theresa Hanley | Grazing |
| Bureau of Land Management | Paul McClain | Grazing |
| Bureau of Land Management | Doug Barnum | Grazing |
| Bureau of Land Management | Steve Davis | Grazing |
| Bureau of Land Management | Elena Shaw | Grazing |
| Idaho Dairy Association | Lewis Eilers | CAFOs |
| CAFO Committee | Harry Hoagland | CAFOs |
| Recreation Committee | Doug Lincoln | Recreation |
| Recreation Committee | Don Zuck | Recreation |
| Bureau of Reclamation | Jennifer Smout | Water quantity |
| Bureau of Reclamation | Shawn Stout | Water quantity |
| U.S. Forest Service | Valdon Hancock | Grazing/Silviculture |

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Introduction

I. PRELIMINARY

At this time implementation plans are not considered mandatory to the TMDL process in Idaho. However, IDEQ-TFRO and the water user industries chose to do an implementation plan in the Upper Snake Rock subbasin for the following reasons:

1. To maintain a proactive approach in the Upper Snake Rock 303(d)-waterbody cleanup effort. By maintaining a proactive approach, all water user industries can focus on management schemes and approaches that will be used on 303(d) waterbodies and on other waterbodies that have yet to be defined as water quality limited.
2. To focus on post-TMDL activities on 303(d) waterbodies by seeking after funding sources.
3. To provide reasonable assurance to USEPA and IDEQ-TFRO that both point and nonpoint source industries will have reduction plans in place that meet beneficial use. An attainment goal for beneficial uses typically covers a 10-year period. However, a longer period may be needed if it can be demonstrated scientifically or otherwise that 10 years is insufficient and technically impossible.

This implementation plan has precedence in the Upper Snake Rock TMDL (2000), the Mid-Snake TMDL (1997), and the Billingsley Creek TMDL (1993) in the Upper Snake Rock subbasin. It is an iterative document that incorporates adaptive management on all 303(d) streams.

"The primary purpose of any implementation plan under the TMDL process is to identify and describe the specific pollution controls or management measures to be undertaken; the mechanisms by which the selected pollution control and management measures will be put into action; and, the authorities, regulations, permits, contracts, commitments, or other evidence sufficient to ensure that implementation will take place. The plan also describes when implementation will take place, identifies when various tasks or actions items will begin and end, when mid-term and final objectives will be met, and establishes dates for meeting water quality targets" (IDEQ 1999 [Appendix D, p 5]).

To this end, this document as the Upper Snake Rock Implementation Plan incorporates a basic outline that all water user industries have attempted to follow in order to maintain a sense of consistency throughout the document. The outline was developed by IDEQ-TFRO with input from the Middle Snake Watershed Advisory Group (WAG). The outline was finally presented to the WAG on November 15, 2000 at their regular WAG meeting. At that time a pre-scheduled meeting for January 17, 2001 was selected as the time when the implementation plans would be presented in draft form by all the industries. That outline is as follows with appropriate comments following.

IMPLEMENTATION PLAN OUTLINE

1. INTRODUCTION
2. PUBLIC INVOLVEMENT
3. IMPLEMENTATION TIMELINE: SHORT- AND LONG-TERM GOALS

4. PROPOSED MANAGEMENT ACTIONS & LINKAGE TO BENEFICIAL USES
5. DISCUSSION OF COSTS AND FUNDING
6. COMPLIANCE ACTIONS
7. THREATENED OR ENDANGERED SPECIES
8. IDENTIFICATION OF STAKEHOLDERS
9. REASONABLE ASSURANCE
 - a. IMPLEMENTATION EFFECTIVENESS MONITORING PLAN
 - b. MAINTAINING MANAGEMENT ACTIONS OVER TIME
 - c. EVALUATION OF IMPLEMENTATION EFFECTIVENESS
10. REFERENCES

IDEQ-TFRO will maintain oversight during the implementation process and will rely on all existing authorities for the attainment of beneficial uses and/or state water quality standards on all 303(d) streams in the Upper Snake Rock subbasin. All annual reports will be submitted to IDEQ-TFRO by month of January for the proceeding twelve (12) months of industry activities.

II. PUBLIC INVOLVEMENT

The public involvement process is automatic for all subbasin assessments, total maximum daily loads, and implementation plans. Involvement by water user industries is extremely important and critical to the success of water quality restoration on 303(d) streams. The members of the Middle Snake Watershed Advisory Group have been very instrumental in the development of the implementation plan for the Upper Snake Rock subbasin.

By statute, "members of each watershed advisory group shall be representative of the industries and interests affected by the management of that watershed, along with representatives of local government and the land managing or regulatory agencies with an interest in the management of that watershed and the quality of the water bodies within it" (Idaho Code §39-3615). The Middle Snake Watershed Advisory Group is made up of these interests and will continue to assist IDEQ-TFRO in the management of the watershed for beneficial use attainment of 303(d) listed waterbodies.

III. IMPLEMENTATION TIMELINE

Implementation timelines have been written already in the Upper Snake Rock TMDL. These timelines are based on the pollutant-of-concern and are specific for a particular industry. The following discussion provides a general summary of these timelines for point and nonpoint sources. Each industry will develop its more specific timelines within their individual implementation plan. IDEQ-TFRO will provide oversight for review and assessment of short-term and long-term goals. IDEQ-TFRO will also maintain a database for purposes of review and assessment of wasteload allocation limits. Reviews and/or assessments will be done in the third, fifth, eighth, and tenth year of plan implementation. Such reviews and/or assessments will be presented to the WAG for their comments on an annual basis.

POINT SOURCE INDUSTRIES

"Both technology-based and water quality-based controls are implemented through the NPDES permitting process. Permit limits based on TMDLs are called water quality-based limits. Wasteload allocations establish the level of effluent quality necessary to protect water quality in the receiving water and ensure attainment of water quality standards. Once allowable loadings have been developed through wasteload allocations for specific pollution sources, limits are incorporated into NPDES permits (USEPA 1991 [p 23])." In the Upper Snake Rock subbasin Table 1 describes the short-term

and long-term goals that are prescribed for point source industries that will reasonably assure that point sources will comply with their reduction plans per pollutant. As a condition of the NPDES permit, all point source industries will be required to have specific limitations and monitoring requirements; monitoring, recording, and reporting requirements; compliance responsibilities; and general requirements (where applicable). A quality assurance plan will be developed by each permittee and a best management practices plan (with a schedule for implementation) as part of their monitoring requirements. These provisions will be described in their NPDES permits.

Table 1. Short- and long-term goals for point sources and IDEQ-TFRO on a pollutant basis

| POLLUTANT | INDUSTRY/ AGENCY | YEAR 1 (2001) | YEAR 3 (2003) | YEAR 5 (2005) | YEAR 8 (2008) | YEAR 10 (2010) |
|---|---|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------|
| TSS TP Pathogens | NPDES Facilities | Maintain NPDES Permits | Review | Review & Assessment | Review | Review & Assessment |
| | IDEQ-TFRO | NPDES Database | | | | |
| Temperature | Re-evaluation of temperature criteria via project study by IDEQ-State Office | | | | | |
| Flow | No Flow TMDL; Conservation flows encouraged | | | | | |
| Industry Plans | Each industry will be responsible for the development of an annual summary review or assessment of water quality goals and targets for the Big Wood River subbasin. | | | | | |
| A database of each industry will be maintained by IDEQ-TFRO. TP = total phosphorus, TSS = total suspended solids, TKN = total Kjeldahl nitrogen, NOX = nitrate+nitrite, NH ₃ = ammonia, DO = dissolved oxygen, LA = Land Application. The feedback loop is an important component in all short-term and long-term goals. | | | | | | |

NONPOINT SOURCE INDUSTRIES

Nonpoint source industries in the Upper Snake Rock subbasin include grazing, agriculture, FERC facilities, forestry, CFOs, and recreation. "When establishing permits for point sources in the watershed, the record should show that in the case of any credit for future nonpoint source reductions, (1) there is reasonable assurance that nonpoint source controls will be implemented and maintained or (2) that nonpoint source reductions are demonstrated through an effective monitoring program (USEPA 1991 [p 24])." Essentially, reasonable assurance for nonpoint sources means that nonenforceable actions will result in load allocations for nonpoint sources required by the Upper Snake Rock TMDL.

Where necessary IDEQ-TFRO is prepared to discuss with any federal, State, or local agency/entity, private landowners, the possibility of carrying out such nonenforceable actions through the signing of necessary agreements to achieve success on the water quality limited waterbodies. Such agreements will be pertinent to the restoration of beneficial uses and water quality standards and may include water quality monitoring. Additionally in the case of federal agencies, IDEQ-TFRO supports the *Forest Service and Bureau of Land Management Protocol for Addressing Clean Water Act Section 303(d) Listed Waters* (USFS & USBLM & USEPA 1999) which is to "protect and maintain water quality where standards are met or surpassed, and restore water-quality-limited waterbodies within their jurisdiction to conditions that meet or surpass standards for designated beneficial uses."

Management actions and control actions called for to implement the Upper Snake Rock TMDL began immediately long before the approval of the Upper Snake Rock TMDL by USEPA. Many of the water user industries took a proactive approach by beginning early their management actions and control

actions. The Upper Snake Rock TMDL is designed with the goal of expeditiously attaining compliance with water quality standards, particularly in defining and repairing water quality impairments through the stream corridor approach. It is the belief of IDEQ-TFRO that attainment of water quality standards and beneficial uses will be met as expeditiously as practicable within the 10-year allotted time frame with implementation of management and control actions. However, in the event that beneficial uses are not attained, then the feedback loop as a component of adaptive management in conjunction with monitoring will be used for re-evaluation for implementation of more stringent measures if needed.

A description of control actions (management measures) that could be implemented to achieve the goals of the TMDL for nonpoint sources should be defined for all nonpoint source industries. For the Upper Snake Rock subbasin Table 2 describes the short-term and long-term goals that are prescribed for nonpoint source industries and IDEQ-TFRO. These goals will provide a reasonable assurance that nonpoint sources will comply with their reduction plans per pollutant. Each short-term and long-term goal follows suit with the point source industry short-term and long-term industries.

Table 2. Short- and long-term goals for nonpoint sources and IDEQ-TFRO on a pollutant basis

| POLLUTANT | INDUSTRY | YEAR 1 (2001) | YEAR 3 (2003) | YEAR 5 (2005) | YEAR 8 (2008) | YEAR 10 (2010) |
|------------------------|--|---|------------------|------------------|------------------|-------------------|
| TSS TP Pathogens | Grazing | Development & Plan Implementation | Review | R & A | Review | R & A |
| | Agriculture | | | | | |
| | FERC Facilities | | | | | |
| | Forestry | | | | | |
| | CFOs | Zero Discharge | Zero Discharge | Zero Discharge | Zero Discharge | Zero Discharge |
| | | | Review | R & A | Review | R & A |
| | Recreation | Development & Plan Implementation | Review | R & A | Review | R & A |
| | Roads | | | | | |
| | Construction | | | | | |
| | Mining (AML) | | | | | |
| | Runoff: Urban & Rural | | | | | |
| Septic Tanks | | | | | | |
| Other | Database | | | | | |
| Temperature | Re-evaluation of temperature criteria via project study by IDEQ-State Office | | | | | |
| Flow | No Flow TMDL; Conservation flows encouraged | | | | | |
| Industry Plans | Each industry will be responsible for the development of an annual summary review and assessment of water quality goals and targets for the Upper Snake Rock sub basin. Plans developed under the Upper Snake Rock TMDL will be revised and applied on the Upper Snake Rock TMDL specific for the water quality limited streams. | | | | | |

Prepared by IDEQ-TFRO. A database of each industry will be maintained by IDEQ-TFRO. TP = total

phosphorus, TSS = total suspended solids, TKN = total Kjeldahl nitrogen, NOX = nitrate+nitrite, NH₃, DO = dissolved oxygen, LA = Land Application, NPS = Nonpoint source. Dev. & Imp. = Development and implementation of management plans. Review = Review of management plans by IDEQ, WAG, and designated agency. Assessment = Assessment of beneficial use attainment by IDEQ, TAC, and designated agency. R & A = Review and beneficial use assessment. Land management agencies in conjunction with IDEQ-TFRO will review BMP maintenance periodically. The feedback loop and adaptive management are important components the short-term and long-term goals.

IV. PROPOSED MANAGEMENT ACTIONS AND LINKAGE TO BENEFICIAL USES

All proposed management actions (best management practices) on 303(d) waterbodies must be applied for the purpose of attaining beneficial uses and/or state water quality standards. Unless otherwise defined, it will be assumed that attainment of beneficial uses is the principal goal of restoring the beneficial uses of a 303(d) stream.

V. COMPLIANCE ACTIONS

The objective of the Upper Snake Rock TMDL is to allocate allowable loads among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. The total pollutant load to a waterbody is derived from point, nonpoint, and background sources. The Upper Snake Rock TMDL has attempted to consider the effect of all activities or processes that cause or contribute to the water quality limited conditions of all waterbodies in the Upper Snake Rock subbasin beyond those listed on the 1998 303(d) list.

Compliance actions for the point source industries are dependent on their NPDES permit and the TMDLs involved in the Upper Snake Rock subbasin. The Upper Snake Rock TMDL is specific for TSS, TP, and pathogens for all industries in the Upper Snake Rock subbasin. Additional parameters are described in the individual permits for each point source industry. The permittee must comply with all conditions of their individual permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification or for denial of a permit renewal application. The permittee shall give advance notice to USEPA and IDEQ-TFRO of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

Compliance actions for nonpoint source industries are dependent on three perspectives: State lands, public lands, and private lands. Each requires its own unique set of responsibilities and actions. State lands and public lands are described in Part 7 of the Upper Snake Rock Implementation Plan. IDEQ-TFRO will work collaboratively with these agencies and their permittees on all allotments that contain water quality limited waterbodies for attainment of beneficial uses and/or state water quality standards. Private lands are described in Part 6 of the Upper Snake Rock Implementation Plan. IDEQ-TFRO will work collaboratively with the Idaho Soil Conservation Commission and other agencies/organizations on all private lands that contain water quality limited waterbodies for attainment of beneficial uses and/or state water quality standards.

VI. THREATENED AND ENDANGERED SPECIES PROTECTION

The Endangered Species Act requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) when there is discretionary federal involvement or control over a federal action (such as NPDES permitting), whether obvious (issuance of a new federal permit), or less direct (State operation of a program that retains federal oversight,

such as the NPDES program). Formal consultation between a federal agency and the USFWS becomes necessary when:

1. The federal agency requests consultation after determining the proposed action may affect listed species or critical habitat; or
2. The USFWS, through informal consultation, do not concur with the federal agency's finding that the proposed action is not likely to adversely affect the listed species or critical habitat.

Section 7 of the Endangered Species Act requires federal agencies to request a consultation with the NMFS and the USFWS regarding potential effects an action may have on listed endangered species. As of 1997, the USFWS identified the following federally listed endangered and threatened species in the Middle Snake River area:

1. Endangered Species
 - a. Gray Wolf (*Canis lupis*) - experimental
 - b. Utah valvata snail (*Valvata utahensis*)
 - c. Snake River physa snail (*Physa natricina*)
 - d. Banbury Springs limpet (*Lanx sp.*)
 - e. Idaho spring snail (*Pyrgulopsis idahoensis*)
2. Threatened Species
 - a. Bald eagle (*Haliaeetus leucacephalus*)
 - b. Bliss Rapids snail (*Taylorconcha serpenticola*)
 - c. Ute ladies' tresses (*Spiranthes diluvialis*)

In addition to these species, the USFWS has listed several species of concern: kit fox (*Vulpes velox*), white sturgeon (*Acipenser transmontanus*), Shoshone sculpin (*Cottus greenei*), California floater (*Anodonta californiensis*), and Columbia pebblesnail (*Fluminicola columbiannus*).

To the extent practical all implementation activities on 303(d) streams where threatened or endangered species reside will be conducted in such a fashion as to minimize the taking of any threatened or endangered species. To the extent practical all implementation activities on 303(d) streams where critical habitat exists will be conducted in such a fashion as to minimize the destruction of such critical habitat.

All NPDES permittees must abide by the imposed limits in order to reasonably assure USEPA and USFWS that the taking of any threatened or endangered species, or the destruction of any critical habitat, is minimized. The willful taking of any threatened or endangered species, or the willful destruction of critical habitat, is a violation of the NPDES permit restrictions and the Endangered Species Act and punishable by enforcement provisions.

All nonpoint source activities including the management actions that involve best management practices will be conducted in such a fashion as to minimize the taking of any threatened or endangered species. All nonpoint source activities including the management actions that involve best management practices will be conducted in such a fashion as to minimize the destruction of critical habitat. The willful taking of any threatened or endangered species, or the willful destruction of critical habitat, is a violation of the Endangered Species Act and punishable by enforcement provisions.

VII. IDENTIFICATION OF STAKEHOLDERS

All stakeholders for both point and nonpoint sources will be identified and disclosed to all parties so that public comment and participation can be more complete. Point and nonpoint industries must disclose all their individual facilities that carry out the characteristics and functions of their industry. In particular is this disclosure necessary when attempting to secure funding sources for remediation or recovery programs that concern themselves with restoration of beneficial uses and/or state water quality standards on 303(d) waterbodies.

VIII. REASONABLE ASSURANCE

Control measures to implement this TMDL are not limited to NPDES authorities, but are based on the reasonable assurance that State and local authorities and actions to reduce nonpoint source pollution will also occur. "There must be assurances that nonpoint source control measures will achieve expected load reductions in order to allocate a wasteload to a point source with a TMDL that also allocates expected nonpoint source load reductions (USEPA 1991 [p 22])." The Upper Snake Rock TMDL has load allocations and wasteload allocations calculated with margins of safety to meet water quality standards. However, the allocations are based on estimates, which have used available data and information. Therefore, monitoring for the collection of new data is necessary and required. For the Upper Snake Rock TMDL the reasonable assurance that it will meet its goal of water quality standards is based on three components. First, point source NPDES permits will require monitoring for generation of new data that will be used for wasteload allocation concerns. Second, nonpoint source implementation of BMPs that will be based on land management agency assurances that reductions will occur. And, third, a trend monitoring plan that will be used to document relative changes in various aquatic organism populations. This trend monitoring plan will also consider physical and chemical water quality parameters over a 10-year period in conjunction with data from various agencies, organizations, and water user industries to assess overall progress towards attainment of water quality standards and related beneficial uses. These three components are further defined as follows.

A. IMPLEMENTATION EFFECTIVENESS MONITORING PLAN

Idaho Code §39-3621 provides that "the designated agencies, in cooperation with the appropriate land management agency and the IDEQ shall ensure BMPs are monitored for their effect on water quality. The monitoring results shall be presented to the IDEQ on a schedule agreed to between the designated agency and the IDEQ." "Where no monitoring program exists, or where additional assessments are needed, it is necessary for States to design and implement a monitoring plan. The objectives of monitoring include the assessment of water quality standards attainment, verification of pollution source allocations, calibration or modification of selected models, calculation of dilutions and pollutant mass balances, and evaluation of point and nonpoint source control effectiveness. In their monitoring programs, States should include a description of data collection methodologies and quality assurance/quality control procedures, a review of current discharger monitoring reports, and be integrated with volunteer and cooperative monitoring programs where possible. The monitoring program will result in a sufficient database for assessment of water quality standard attainment and additional predictive modeling if necessary (USEPA 1991 [p 22])." Monitoring provides the information needed to evaluate management. Trend monitoring in conjunction with implementation of BMPs will be used to determine which management measures and BMPs are being implemented, whether management measures and BMPs are being implemented as designed, and the need for increased efforts to promote or induce use of management measures and BMPs. It may be necessary to modify current or proposed monitoring programs to those that are more inline with an adaptive management style for the watershed.

Data from implementation monitoring, used in combination with trend monitoring, will be useful in meeting the following objectives:

1. To evaluate BMP effectiveness for protecting soil and water resources
2. To identify areas in need of further investigation
3. To establish a reference point of overall compliance with BMPs
4. To determine whether farmers are aware of BMPs
5. To identify any BMP implementation problems specific to a category of farms
6. To evaluate whether any agricultural practices cause environmental damage
7. To compare the effectiveness of alternative BMPs
8. To assess if allocations are sufficient to attain beneficial uses
9. To assess if short-term and long-term milestones are being met
10. To describe whom will carry out and finance the monitoring activities

A trend monitoring plan on water quality parameters currently exists for the Middle Snake River. The Middle Snake Technical Advisory Committee is currently in the process of formulating a trend monitoring plan for the tributaries.

B. MAINTAINING MANAGEMENT ACTIONS OVER TIME

Maintaining management actions over time are identified as short-term and long-term goals in the Upper Snake Rock TMDL (§3.6.1, Table 114). For the time being, See section III of the TMDL for short-term and long-term goals. Each individual implementation plan will have its own set of short-term and long-term goals. A summary of these goals and time lines has been presented in this implementation plan under Part 0, Introduction, III. Implementation Timeline.

C. EVALUATION OF IMPLEMENTATION EFFECTIVENESS

As part of the implementation process for all industries in the Upper Snake Rock subbasin, an annual report of progress will be submitted to IDEQ-TFRO to account for any and all activities that have been implemented on water quality limited waterbodies. This report will be included in a general annual report by IDEQ-TFRO and will be submitted to the public and the Middle Snake Watershed Advisory Group for comment.

IX. REFERENCES

All references inclusive of those found in the individual implementation plans will be listed in Part 11, References for the entire plan or plans at the end of the overall implementation plan.

Part 1

Aquaculture Industry Implementation Plan

I. INTRODUCTION

The aquaculture industry's implementation plan for the Upper Snake Rock TMDL involves a combination of NPDES permit requirements as defined by USEPA and best management practices as defined by the Idaho Department of Agriculture (IDA). USEPA holds "primacy" in Idaho for the aquaculture NPDES permits. IDA is the designated agency that leads the industry in the development of best management practices. As described in the implementation plan for the Idaho aquaculture industry for the Upper Snake Rock TMDL (January 17, 2001), IDA assembled and compiled the following documents as their implementation plan:

1. Idaho General Aquaculture Permit (ID-G13-0000) and Fact Sheet:
Effective September 10, 1999
Expires September 10, 2004
Signed August 19, 1999
2. Proposed Watershed Reduction Plan for Aquaculture Facilities for the Middle Snake River (from the Mid-Snake TMDL, 1997).
3. Idaho Waste Management Guidelines for Aquaculture Operations (approved 1997)

The NPDES program is the wastewater discharge permitting program conceived as part of the Clean Water Act. The purpose of the NPDES program is to protect human health and the environment. The Clean Water Act requires that all "point sources" discharging "pollutants" into "waters of the United States" must obtain a NPDES permit. The term "waters of the United States" is defined broadly in the Clean Water Act. "Waters of the United States" include navigable waters, tributaries to navigable waters, interstate waters, and the oceans out to 200 miles. These waters also include intrastate waters that are used by interstate travelers for recreation or other purposes, as a source of fish or shell fish sold in interstate commerce, or for industrial purposes by industries engaged in interstate commerce.

II. PUBLIC INVOLVEMENT

The aquaculture industry is a very diverse industry in the Upper Snake Rock subbasin. It includes cold water production hatcheries, warm water production hatcheries, and conservation hatcheries (IDFG, USFWS). As a whole a representative of the Idaho Aquaculture Association (IAA) represents the industry in the Middle Snake Watershed Advisory Group (Mid-Snake WAG). This representation has occurred since the first inception of the Mid-Snake Study Group in the late 1980s. However, because of their diversity representation of each group is at times fractured, particularly when it comes to disseminating information to the industry as a whole. As a consequence of this, IDEQ-TFRO has taken the responsibility of mailings on any items dealing with the TMDL, the wasteload allocation, or implementation. This is consistent with the "no net increase" policy for point sources. The policy states, "IDEQ regions shall issue a letter to each facility detailing that if baseline information is not established by the discharger by a certain date, IDEQ will proceed to establish baseline information necessary for the development of a TMDL" (No Net Increase Policy, 1998).

The aquaculture industry is also represented in the Middle Snake Technical Advisory Committee by various members of the industry (that includes the diverse groups) and the IAA.

The following documents/actions have gone through the public comment process and have allowed for input from the industry and the general public as a whole.

1. The Middle Snake River Watershed Management Plan (Mid-Snake TMDL; 1997)
2. The Idaho Waste Management Guidelines for Aquaculture Operations (approved 1997)
3. The General Aquaculture Permit ID-G13-0000 (1999)
4. The Upper Snake Rock Watershed Management Plan (Upper Snake Rock TMDL; 1999)

The final draft of the Upper Snake Rock Implementation Plan will go through a public comment process in the summer of 2001.

III. IMPLEMENTATION TIMELINE

The Upper Snake Rock TMDL has the short-term and long-term goals for all point sources on a pollutant basis. These are found in Table 114 (page 229) of the TMDL and are summarized in Table 3.

Table 3. Short- and long-term goals for the aquaculture NPDES permitted industry on a pollutant basis

| POLLUTANT | YEAR 1 | YEAR 3 | YEAR 5 | YEAR 8 | YEAR 10 | YEAR 15 |
|------------------|--|--------------------------|------------------------|--|-----------------------------|-----------------------------|
| TP | Permit Issued | Reallocation of TP loads | Meet target reductions | Maintain permit limits | Reassessment of allocations | Reassessment of allocations |
| TSS | Permit Issued | Allocation of TSS loads | Meet target reductions | Maintain permit limits | Reassessment of allocations | Reassessment of allocations |
| Pathogens | Not Applicable during the first 5 years. Monitoring of additional parameters may potentially bring about new limits. | | | Reassessment of new parameter limits where applicable. | | Reassessment |
| NOX | | | | | | |
| NH3 | | | | | | |
| TKN | | | | | | |
| DO | | | | | | |
| Temperature | | | | | | |
| Flow | No Flow TMDL; conservation flows encouraged | | | | | |

The overall implementation timeline is based on the five (5) year reissuance schedule for the NPDES permits. Therefore, all implementation scheduling for short-term and long-term milestones shall be based on the reissuance schedule.

IV. PROPOSED MANAGEMENT ACTIONS AND LINKAGE TO BENEFICIAL USES

The development of a wasteload allocation for aquaculture establishes the level of effluent quality necessary to protect water quality in the receiving stream and ensure attainment of water quality standards. For point sources all management actions are linked to their NPDES permit. As defined in the General Aquaculture Permit, discharges from aquaculture facilities or associated, on-site fish processors shall not violate Idaho State Water Quality Standards.

As described in the Proposed Watershed Reduction Plan for Aquaculture Facilities for the Middle Snake River, the proposed management actions for the aquaculture industry include:

1. Best management practice definition and implementation throughout the industry.

2. Development of standard industry guidelines and criteria for effluent control structures and waste system design.
3. Operator education through workshops, annual meetings, and seminars.
4. Development and implementation of Quality Assurance Program for producers.
5. Research at local, state, and federal level focusing on waste management technologies, management strategies, feeds, and feeding.
6. Peer pressure.

The IDA, as the designated agency for the development of best management practices for aquaculture, has endorsed The Idaho Waste Management Guidelines for Aquaculture Operations as the source for authorized best management practices. Any management actions (best management practices) conducted on an NPDES permitted facility that discharges to a 303(d) waterbody must utilize the authorized best management practices as defined by the IDA, or any best management practice that IDA authorizes.

The NPDES permit requires the development and implementation of a Best Management Practices Plan on permitted facilities that achieves certain objectives and requirements. Through the implementation of a Best Management Practices Plan a permittee shall prevent or minimize the generation and discharge of wastes and pollutants from the facility to the receiving waters and ensure disposal or land application of wastes in such a way as to have a minimal environmental impact. The general objectives and requirements of the Best Management Practices Plan (as described in the permit) are:

1. The permittee shall certify that their Best Management Practices Plan is complete, available upon request to USEPA and IDEQ, and being implemented. A permittee shall maintain a copy of its Best Management Practices Plan at its facility and shall make the plan available upon request to representatives of USEPA, IDEQ, or IDA.
2. The number and quantity of wastes and pollutants, discharged or potentially discharged at the facility shall be minimized by a permittee to the extent feasible by managing each input and output, especially effluent waste streams, in the most appropriate manner.
3. Any best management practices shall ensure proper operation and maintenance of the facility.
4. Each facility component or system shall be evaluated by the operator for its waste minimization opportunities and its potential for causing a release of significant amounts of pollutants to receiving waters due to the failure or improper operation of equipment.
5. A permittee shall ensure that its operations staff is familiar with the Best Management Practices Plan and have been adequately trained in the specific procedures that it requires.
6. The Best Management Practices Plan shall be consistent with the objectives described in Section VI.F of the NPDES permit and the general guidance contained in the Idaho Waste Management Guidelines for Aquaculture Operations, or any subsequent revisions to the guidance document.

7. The Best Management Practices Plan shall include any necessary plot plans, drawings or maps to describe the facility. It will also include an explicit quantification of inputs and outputs of the facility, including fish, feed, feed components, product, offal, mortalities due to predation and disease, dissolved and solid pollutants, and water. It will also include a description of specific best management practices and standard operating procedures used to achieve the objectives of Section VI.F.4 of the NPDES permit including, for example, schedules for solids removal from each waste collection component including what procedures will be used to determine when cleaning is necessary to prevent accumulated solids from being discharged. And, it will also include a statement that the Best Management Practices Plan has been reviewed and endorsed by the facility manager and the individuals responsible for implementation of the Best Management Practices Plan.
8. A permittee shall amend the Best Management Practices Plan whenever there is a change in the facility or in the operation of the facility, which materially increases the generation of pollutants and their release or potential release to the receiving waters. A permittee shall also amend the Best Management Practices Plan, as appropriate, when facility operations covered by the Best Management Practices Plan change. Any such changes to the Best Management Practices Plan shall be consistent with the objectives and specific requirements listed in Section VI.F of the NPDES permit. The facility manager shall review all changes in the Best Management Practices Plan.
9. If at any time the Best Management Practices Plan proves to be ineffective in achieving the general objective of preventing or minimizing the generation and discharge of wastes and pollutants to the receiving waters and/or the specific requirements in Section VI.F of the NPDES permit, the permit and/or the Best Management Practices Plan shall be subject to modification to incorporate revised best management practices requirements.

V. COMPLIANCE ACTIONS

Compliance actions for the aquaculture industry are dependent on their NPDES permit and the TMDLs involved in the Upper Snake Rock subbasin. As described in the Proposed Watershed Reduction Plan for Aquaculture Facilities for the Middle Snake River, compliance actions for the aquaculture industry includes NPDES permits through USEPA, consent orders/compliance schedules through IDEQ, and Section 401 water quality certification through IDEQ.

There are three TMDLs of concern in the Upper Snake Rock subbasin. They are the Billingsley Creek TMDL, the Mid-Snake TMDL, and The Upper Snake Rock TMDL. The Upper Snake Rock TMDL will function as an umbrella to the Billingsley Creek TMDL and the Mid-Snake TMDL. All TMDLs in the Upper Snake Rock subbasin will develop a wasteload allocation by Year 3 of the acceptance of the Upper Snake Rock TMDL by USEPA.

The Billingsley Creek TMDL is specific to the facilities on Billingsley Creek. These facilities will develop a wasteload allocation that is similar to the Mid-Snake TMDL. However, their allocation is outside the limit of the 970.2 lbs/day. The Billingsley Creek watershed is comprised of 13 aquaculture facilities. Several of these facilities have annual production less than 20,000 lbs. Because Billingsley Creek is designated special resource water and domestic water supply, a higher level of water quality protection is required. These unpermitted facilities shall be designated "significant contributors of pollution" to Billingsley Creek by USEPA upon request by IDEQ-TFRO. This designation is supported by the Upper Snake Rock TMDL's assessment that 73% of the TSS and 91% of the TP are attributed

to point source pollution (aquaculture). This makes the point sources the major significant contributors of pollution for Billingsley Creek. Since Billingsley Creek has been designated special resource water and domestic water supply, a higher level of water quality protection is required because "the water is of outstanding high quality, exceeding both criteria for primary contact recreation and cold water aquatic life" (IDAPA 58.01.02.056.01.a). As such, "no new point source can discharge pollutants, and no existing point source can increase its discharge of pollutants above the design capacity of its existing wastewater treatment facility, to any water designated as a special resource water or to a tributary of, or to the upstream segment of a special resource water" (IDAPA 58.01.02.400.01.a).

The Mid-Snake TMDL is specific for TP for all the facilities in the Upper Snake Rock subbasin. The facilities identified in the TMDL will develop a wasteload allocation such that their total limit shall not exceed 970.2 lbs/day. Outside the scope of the 970.2 lbs/day are the fish processors who will also develop a wasteload allocation for their group by the end of Year 3.

The Upper Snake Rock TMDL is specific for TSS, TP, and pathogens for all the facilities in the Upper Snake Rock subbasin. The aquaculture industry is currently beginning the wasteload allocation process and will have an allocation by the end of Year 3. Non-permitted facilities that produce less than 20,000 lbs annual trout production unless designated by USEPA as significant contributors of pollution, shall be included in the nonpoint source component of the loading analysis.

VI. THREATENED AND ENDANGERED SPECIES PROTECTION

Due to effluent characterization concerns by USFWS-Boise, and as described in USEPA's Biological Assessment of the Aquaculture General Permit, threatened and endangered species protection in the Upper Snake Rock subbasin is critical and paramount. In particular the five (5) T&E mollusc species in the Middle Snake River and spring-fed streams that discharge into the Middle Snake River are of vital concern due to supposed toxic and/or anoxic sediments that may exist downstream from the point of discharge of an aquaculture facility. All five (5) species are characterized as geographically limited and generally intolerant of pollution, although recent research indicates that some of the species may be more pollution-tolerant than previously considered. These concerns are being address in the NDPES Aquaculture General Permit through an effluent characterization study, whole effluent toxicity testing, a sediment study, and a reduction in total suspended solids below a 5 mg/L effluent limit (that is yet to be determined). See also Part 0, Introduction, VI. Threatened and Endangered Species Protection.

VII. IDENTIFICATION OF STAKEHOLDERS

The following ninety (90) facilities have been identified in the Mid-Snake and Upper Snake Rock TMDLs as permittees in the aquaculture industry of the Upper Snake Rock subbasin. They are listed here according to their receiving waterbody. Facilities less than 20,000 lbs annual may not be identified per source water. All facilities will receive a wasteload allocation at the end of Year 3 that will translate into permit limits.

| <u>SOURCE WATER</u> | <u>AQUACULTURE FACILITY</u> | <u>RECEIVING WATER</u> |
|---------------------------------|---|------------------------|
| 1. Alpheus Creek | Blue Lakes Trout Farm, 000095-7 | Snake River |
| | Pristine Springs/Sunnybrook W/W, 002501-1 | Snake River |
| | Pristine Springs/Sunnybrook C/W, 002501-1 | Snake River |
| | Canyon Springs, 002731-6 | Snake River |
| 2. Billingsley Creek Facilities | Aquarius Aquaculture/Hidden Sprgs, 002440-6 | Billingsley Creek |

| | | |
|---|--|---|
| | Rangen Inc., 002303-5 Schrank Farm Ponds/Lee, not permitted Johnson Farm Ponds, not permitted Jones Raceways, 000086-8 McFadden Farm Ponds, 002612-3 Idaho Springs/Goldsprings, 000073-6 Fisheries Development, 002499-6 Tupper Ponds, not permitted Boyer Farm Ponds, 002704-9 Talbot Trout Ponds, 002677-8 Emerald Valley Ranch, not permitted 2 Additional facilities that discharge to: | Billingsley Creek Billingsley Creek Billingsley Creek Billingsley Creek Billingsley Creek Billingsley Creek Billingsley Creek Billingsley Creek Billingsley Creek/Snake River Billingsley Creek Snake River |
| 3. Birch Creek | C.J. Simms Ponds, 002683-2 Birch Creek Trout, 002601-8 | Birch Creek Snake River |
| 4. Blind Canyon | Blind Canyon Hatchery, 002599-2 | Blind Canyon |
| 5. Briggs Creek | Briggs Creek Fish, 002684-1 Kaster/Sheldon Ponds, 002517-8 | Briggs Creek Snake River |
| 6. Cedar Draw | Rainbow Trout Farm/Filer, 000102-3 Yoder Farm Ponds/SEAPAC, 002423-6 Cedar Draw Hatchery, 002503-8 Olson Ponds, 002592-5 Stutzman Farm Ponds, 002730-8 Rainbow Trout/Filer Processing, 000102-3 SEAPAC, 002423-6 Tunnel Creek Fish Farm, 002292-6 Leo Martin's Fish Farm, 002775-8 | Cedar Draw Cedar Draw Cedar Draw Cedar Draw (F-Coulee) Cedar Draw Cedar Draw Cedar Draw Cedar Draw (Tunnel Creek) Cedar Draw (Tunnel Creek) |
| 7. Clear Springs | Clear Lakes Trout, 000101-5 Middle Hatchery, 000093-1 Snake River Hatchery, 000075-2 Clear Springs Processing Plant, 002688-3 Idaho Trout Processors, 000101-5 | Snake River (Clear Lakes) Snake River (Clear Lakes) Snake River (Clear Lakes) Snake River (Clear Lakes) Snake River (Clear Lakes) |
| 8. Crystal Springs | Crystal Springs Trout Farm, 000089-2 Magic Valley Steelhead Hatchery, 002304-3 | Snake River (Crystal Lake) Snake River |
| 9. Decker Springs | Decker Springs Farm Pond, 002734-1 Woods Farm Ponds/Rangen, 002733-2 | Rangen Wood Farm Ponds Snake River |
| 10. Deep Creek | Deep Creek Trout Farm/Boswell, 002515-1 Deep Creek Trout Farm, 002670-1 Peter's Farm Pond/Kaufman, 002424-4 Harder Livestock Partnership/Cox, 002533-0 Dolana Farm Ponds, 002615-8 Howell Farm Ponds, 002763-4 | Deep Creek Deep Creek Deep Creek Deep Creek Deep Creek Deep Creek (irrigation canal) |
| 11. East Perrine Coulee | Greene's Trout Farm, 000096-5 | East Perrine Coulee |
| 12. LQ/LS Drain | Rand Trout Farm, 002583-6 | LQ/LS Drain |
| 13. Middle Snake River (Direct Dischargers) | Barret Farm Pond, 002718-9 Big Bend Trout, 002532-1 Blue Lakes Trout, 000095-7 | Snake River Snake River (ditch) Snake River |

| | |
|---|----------------------------|
| Box Canyon Trout, 002290-0 | Snake River |
| Buckeye Farm Ponds, 002611-5 | Snake River |
| Canyon Springs, 002731-6 | Snake River |
| Catfish Farm, 002295-1 | Snake River |
| Flemming Farm Ponds, 002732-4 | Snake River |
| Flemming Ponds, 002780-4 | Snake River |
| Henslee Hatchery, 002762-6 | Snake River (ditch) |
| Lemmon Ponds, 002668-9 | Snake River (Curren ditch) |
| Pisces Investment/Magic Springs, 000097-3 | Snake River |
| Rim View Trout/Wendell, 000099-0 | Snake River |
| Slane Ponds, 002779-1 | Snake River |
| Smith Farm Ponds, 002687-5 | Snake River |
| Stevenson Ponds, 002781-2 | Snake River |
| White Springs Trout, 002580-1 | Snake River |
| Wright Farm Ponds, 002725-1 | Snake River |
| Eckles Fish Farm, 002676-0 (Billingsley Ck) | Snake River |
| Rainbow Falls Fish/Dunn, 00267-1(BillingsleyCk) | Snake River |

Note: Eckles Fish Farm and Rainbow Falls Fish/Dunn are now Billingsley Bay. The water is diverted from Billingsley Creek. The three discharges are to the Snake River.

14. Mud Creek

| | |
|-----------------------------------|------------------------|
| Rainbow Trout Farm/Buhl, 000103-1 | Mud Creek |
| W&W Trout Farm, 002606-9 | Mud Creek |
| White's Trout Farm, 002604-2 | Mud Creek |
| Buhl Trout Rearing, 002674-3 | Mud Creek |
| Buhl Trout Farm/Blau, 002673-5 | Mud Creek (unnamed) |
| First Ascent Fish Farm, 002777-4 | Mud Creek |
| Rocky Ridge Ranch, 002729-4 | Mud Creek |
| Mi Vida Loca, 002788-0 | Mud Creek |
| Juker Farm Ponds, 002618-2 | Mud Creek (Silo Creek) |
| RCP, 002752-9 | Mud Creek (Silo Creek) |

15. Niagara Springs

| | |
|--|-----------------------|
| Niagara Springs Hatchery/IPC, 002238-1 | Niagara Springs Creek |
|--|-----------------------|

16. Riley Creek

| | |
|-----------------------------------|-------------|
| USFWS/Hagerman National, 000082-5 | Riley Creek |
| IDFG/Hagerman State, 000080-9 | Riley Creek |

17. Rock Creek

| | |
|--|----------------------------|
| Canyon Trout Farm, 002191-1 | Rock Creek |
| Daydream Ranch, 002680-8 | Rock Creek |
| Deadman Hatchery, 002689-1 | Rock Creek (Deadman Gulch) |
| CSI Fish Hatchery, 002630-1 | Rock Creek |
| Aquaculture Industries/Frame, 002703-1 | Rock Creek |
| Coats Farm Ponds, 002761-8 | Rock Creek |
| Canyon Trout Farm/Processing, 002191-1 | Rock Creek |

18. Stoddard Creek

| | |
|-----------------------------------|--------------------------|
| Bell Fish Ponds, 002491-1 | Stoddard Creek (unnamed) |
| Standal Ponds, 002778-2 | Stoddard Creek |
| White Water Ranch/Bliss, 000091-4 | Stoddard Creek |

19. Thousand Springs

| | |
|---|------------------|
| Ten Springs/Blind Canyon Aqua, 002600-0 | Thousand Springs |
|---|------------------|

20. Fish Processors Facilities

| | |
|--|---------------------------|
| Canyon Trout/Klundt, 002191-1 | Rock Creek |
| Fish Processors/Leo Ray | |
| Rainbow Filer/Hardy, 000102-3 | Cedar Draw |
| Idaho Trout Processors/Hardy, 000101-5 | Snake River (Clear Lakes) |

Clear Springs Foods Processing, 002688-3
Silver Creek Farms/McCullum
SEAPAC of Idaho, 002423-6

Snake River (Clear Lakes)
City of Twin Falls Pretreatment
Cedar Draw

VIII. REASONABLE ASSURANCE

The USEPA currently retains "primacy" for the NPDES permits in Idaho. This implies that the USEPA is responsible for the permitting and enforcement of all NPDES permits in the state. Aquaculture is defined by federal statute as a point source and falls under the NPDES program.

The Idaho Department of Environmental Quality (IDEQ) is responsible for the water quality certification of all NPDES permits in Idaho. This implies that in order to certify the NPDES permits for aquaculture, the NPDES permit must meet and protect for Idaho water quality standards, which includes designated and existing beneficial uses.

As part of a Performance Partnership Agreement the USEPA and the IDEQ have agreed to conduct a certain number of inspections per year, as negotiated. The inspections are handled as "surprise" inspections and follow certain protocols as defined by the USEPA and the IDEQ.

Under the Upper Snake Rock TMDL and the Mid-Snake TMDL, a principal objective is to allocate allowable loads among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. Since both TMDLs reasonably assure that nonpoint source control measures will achieve expected load reductions, the appropriate control mechanism used for point sources is the NPDES permit. As part of this effort, the USEPA has recently made effective in Idaho a General Aquaculture Permit (ID-G13-0000) that by statute protects for human health and the environment. As part of that effort the IDEQ-TFRO has issued a Clean Water Act §401 water quality certification for the Idaho General Aquaculture Permit.

The General Aquaculture Permit (ID-G13-0000) is the legal authorization instrument for aquaculture facilities in Idaho (or concentrated aquatic animal production facilities) and associated, on-site fish processors, to legally discharge into waters of the State of Idaho and/or waters of the United States (as defined by USEPA). As such, the aquaculture facilities covered by the NPDES permit (and according to 40 CFR 122 Appendix C) includes facilities that:

1. Contain, grow or hold fish in raceways, ponds, and other similar structures;
2. Discharge pollutants to surface waters of the United States during at least thirty (30) days per year; and
3. Meet any of the following criteria for production or feeding:
 - a. A cold water aquaculture facility that has a production of 20,000 pounds or more of cold water fish per year and which feeds 5,000 pounds or more of food in any one calendar month, or
 - b. A warm water aquaculture facility that has a production of more than 100,000 pounds of warm water fish per year.

In addition, the USEPA has the statutory authority to designate a facility that is less than 20,000 pounds or more of cold water fish per year and which feeds less than 5,000 pounds of food in any one

calendar month as a "significant contributor of pollution" to the waters of the United States. In making this designation, the USEPA shall consider the following factors:

1. The location and quality of the receiving water.
2. The capacities of the facility.
3. The quantity and nature of the pollutants discharged. And,
4. Other relevant factors, such as TMDL determinations for watersheds and CWA §401 water quality certified stipulations by the IDEQ (40 CFR §122.24).

A. IMPLEMENTATION EFFECTIVENESS: MONITORING PLAN

As described in the Upper Snake Rock TMDL (p. 229), the reasonable assurance that the aquaculture industry facilities will meet water quality standards is based on two monitoring components. First, the requirements for compliance monitoring are specifically defined in the NPDES permit. And, second, the use of the aquaculture NPDES monitoring data in the overall trend monitoring plan of the Upper Snake Rock subbasin. Monitoring provides the information needed to evaluate management actions. The generation of new data is a necessary requirement that will be used in the development of a wasteload allocation prior to Year 5 of the TMDL plan, and will be used in the overall assessment of the Middle Snake River and/or its 303(d) tributaries. The General Aquaculture Permit carries interim limits that are utilized as water quality targets for the fish farms to reduce prior to the issuance of a final wasteload allocation.

The monitoring requirements for the aquaculture industry are defined specifically in the General Aquaculture Permit. The Upper Snake Rock TMDL (§3.6.3 Trend Monitoring Plan) lays out the major objectives for usage of point source monitoring in conjunction with a trend monitoring plan.

See Part 0, Introduction, VIII. Reasonable Assurance, A. Implementation Effectiveness Monitoring Plan for further information.

B. MAINTAINING MANAGEMENT ACTIONS OVER TIME

Maintaining management actions over time are identified as short-term and long-term goals in the Upper Snake Rock TMDL (§3.6.1, Table 114). Control actions and/or management actions as measures for aquaculture facilities are linked to their NPDES permits. Permit limits based on TMDLs are called water quality-based limits. As such the development of a wasteload allocation for aquaculture establishes the level of effluent quality necessary to protect water quality in the receiving stream and ensure attainment of water quality standards. The permitting process is iterative in that each five (5) years the permit is reassessed and/or reissued. This process sets the short-term (five years) and long-term (10 year and 15 years) in place for when the NPDES permit will be re-evaluated according to the environmental concerns for the receiving waterbody. The Upper Snake Rock TMDL supports this approach and has developed its short-term and long-term goals around the five (5) year permit cycle.

C. EVALUATION OF IMPLEMENTATION EFFECTIVENESS

As described in the Proposed Watershed Reduction Plan for Aquaculture Facilities for the Middle Snake River, evaluation of implementation effectiveness will be governed through a monitoring program that involves NPDES compliance monitoring and an overall watershed trend monitoring plan. In addition, an annual progress report will be developed by the industry and submitted to IDEQ-TFRO.

IDEQ-TFRO will evaluate the implementation effectiveness of the aquaculture industry based on the data provided through their compliance monitoring and the overall watershed trend monitoring plan. The Middle Snake Technical Advisory Committee will provide technical assistance to IDEQ-TFRO in its evaluation of implementation effectiveness. An annual report developed by IDEQ-TFRO will be presented to the Middle Snake Watershed Advisory Committee to receive their comments.

Part 2

Municipality Industry's Implementation Plan

I. INTRODUCTION

The municipality industry's implementation plan for the Upper Snake Rock TMDL involves a combination of NPDES permit requirements as defined by USEPA and best management practices as defined in their Best Management Practices Plan under their NPDES permit. USEPA holds "primacy" in Idaho for the municipality NPDES permits. IDEQ is the designated agency (as defined by State statute) that leads the industry in the development of best management practices. As part of their implementation plan, the municipality industry utilizes the following documents:

1. NPDES Municipality Permit and Fact Sheet:
Effective - dependent on municipality
Expires - dependent on municipality
Signed - dependent on municipality
2. Proposed Watershed Reduction Plan for the Wastewater Treatment Industry (from the Mid-Snake TMDL, 1997).
3. The Middle Snake River Watershed Management Plan, Phase 1 TMDL, Total Phosphorus (1997).
4. The Upper Snake Rock Watershed Management Plan (1999).

IDEQ-TFRO has accepted and utilized these documents as part of the municipality industry's implementation plan.

The NPDES program is the wastewater discharge permitting program conceived as part of the Clean Water Act. The purpose of the NPDES program is to protect human health and the environment. The Clean Water Act requires that all "point sources" discharging "pollutants" into "waters of the United States" must obtain a NPDES permit. The term "waters of the United States" is defined broadly in the Clean Water Act. "Waters of the United States" include navigable waters, tributaries to navigable waters, interstate waters, and the oceans out to 200 miles. These waters also include intrastate waters that are used by interstate travelers for recreation or other purposes, as a source of fish or shell fish sold in interstate commerce, or for industrial purposes by industries engaged in interstate commerce.

II. PUBLIC INVOLVEMENT

The municipality industry is a technologically diverse industry in the Upper Snake Rock subbasin. It includes facilities that discharge, that seasonally discharge, and that do not discharge to waters of the State of Idaho and to waters of the United States. Amongst the various cities the City of Twin Falls is the lead representative of the municipality industry in the Middle Snake Watershed Advisory Group (Mid-Snake WAG). This representation has occurred since the first inception of the Mid-Snake Study Group in the late 1980s.

The municipality industry is also represented in the Middle Snake Technical Advisory Committee (Mid-Snake TAC) by various members of the industry along with the City of Twin Falls.

The following documents/actions have gone through the public comment process and have allowed for industry input and the general public as a whole.

1. NPDES Municipality Permit and Fact Sheet
2. Proposed Watershed Reduction Plan for the Wastewater Treatment Industry (from the Mid-Snake TMDL, 1997).
3. The Middle Snake River Watershed Management Plan, Phase 1 TMDL, Total Phosphorus (1997).
4. The Upper Snake Rock Watershed Management Plan (1999).

The final draft of the Upper Snake Rock Implementation Plan will go through a public comment period in the summer of 2001.

III. IMPLEMENTATION TIMELINE

The Upper Snake Rock TMDL has the short-term and long-term goals for all point sources on a pollutant basis. These are found in Table 114 (page 229) of the TMDL and are summarized in Table 4.

Table 4. Short- and long-term goals for the NPDES municipality industry on a pollutant basis

| POLLUTANT | YEAR 1 | YEAR 3 | YEAR 5 | YEAR 8 | YEAR 10 | YEAR 15 |
|---------------------------|---|---|--------------------------------|--------------------------------|-----------------------------|-----------------------------|
| TP | Permit Issued | Reallocation of TP loads | Meet target reductions | Maintain permit limits | Reassessment of allocations | Reassessment of allocations |
| | | Land Application permits reviewed and maintained by IDEQ. | | | | |
| TSS | Permit Issued | Allocation of TSS loads | Meet target reductions | Maintain permit limits | Reassessment of allocations | Reassessment of allocations |
| | | Land Application permits reviewed and maintained by IDEQ. | | | | |
| Pathogens | Permit Issued | Reallocation of pathogen loads | Meet target reductions | Maintain permit limits | Reassessment of allocations | Reassessment of allocations |
| | | Land Application permits reviewed and maintained by IDEQ. | | | | |
| NOX, NH3, DO, Temperature | Monitoring | Assessment of loads for possible TMDL | Review and assessment of loads | Review and assessment of loads | | |
| Flow | No Flow TMDL; conservation flows encouraged | | | | | |

The overall implementation timeline is based on the five (5) year reissuance schedule for the NPDES permits. Therefore, all implementation scheduling for short-term and long-term milestones shall be based on the reissuance schedule.

IV. PROPOSED MANAGEMENT ACTIONS AND LINKAGE TO BENEFICIAL USES

The NPDES permit requires the development and implementation of a Best Management Practices Plan (or BMP Plan) on permitted facilities that achieve certain objectives and requirements. Through the implementation of a BMP Plan a permittee shall prevent or minimize the generation and discharge of wastes and pollutants from the facility to the receiving waters and ensure disposal or land application

of wastes in such a way as to have a minimal environmental impact. The general objectives and requirements of the BMP Plan (as described in the permit) are:

1. The BMP Plan shall include measures that prevent, or minimize, the potential for the release of nutrients to any water of the State of Idaho or any waters of the United States.
2. The BMP Plan shall be consistent with the Municipality Industry Management Actions of the Middle Snake River Watershed Management Plan (Table 30). Those actions are described as follows:
 - a. Survey municipal treatment plants.
 - b. Municipal adoption of the watershed management plan.
 - c. Develop and implement a public information program.
 - d. Initiate nutrient sampling of influent and effluent.
 - e. Develop and utilize BMPs for operation and maintenance.
 - f. Promote land application.
 - g. Promote storm water pollution prevention.
 - h. Promote water conservation.
3. The BMP Plan shall be retained on site and made available to USEPA and IDEQ-TFRO upon request.
4. The municipality shall develop a description of pollution prevention measures and controls appropriate for the facility and implement such controls.
5. The description of management controls shall address, to the extent practical, the following minimum components:
 - a. Research, develop, and implement a public information and education program.
 - b. Water conservation.
 - c. Land application of treated effluent.
 - d. Land application of biosolids.
 - e. Storm water pollution prevention.
 - f. Operational practices that can be used to reduce nutrient levels in wastewater treatment.

V. COMPLIANCE ACTIONS

Compliance actions for the municipality industry are dependent on their NPDES permit and the TMDLs involved in the Upper Snake Rock subbasin. As described in the Proposed Watershed Reduction Plan for the Wastewater Treatment Industry for the Middle Snake River, compliance actions for the municipality industry includes NPDES permits requirements through USEPA, plant and facility upgrade incentives, consent orders with recalcitrant operators, and developing a pre-treatment agreements with another industry. These compliance actions are described in Table 30 of the Mid-Snake TMDL.

The Upper Snake Rock TMDL is specific for TSS, TP, and pathogens for all the municipal facilities in the Upper Snake Rock subbasin. Additional parameters are described in the individual permits for each facility.

The permittee must comply with all conditions of their individual permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification or for denial of a permit renewal application. The permittee shall give advance notice to USEPA and IDEQ-TFRO of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of their individual permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

VI. THREATENED AND ENDANGERED SPECIES PROTECTION

See Part 0, Introduction, VI. Threatened and Endangered Species.

As part of the 1999 NPDES modification for all facilities, USEPA completed a biological evaluation analyzing the effects of this permit on listed species. The evaluation lead to consultation with USFWS under section 7 of the Endangered Species Act regarding the impact of the permit on the listed species. The USFWS subsequently issued a Biological Opinion in 1999 on the effects of USEPA issuing the NPDES permits to the municipality industry to permittees that are authorized to discharge into the Middle Snake River. The opinion of the USFWS is that the proposed action will not likely to jeopardize the continued existence of listed snail species in the action area. The USFWS identified eight (8) "reasonable and prudent measures" that must be addressed by USEPA in order to minimize incidental take. Measures listed in the Incidental Take Statement are "non-discretionary, and must be implemented by the USEPA so that they become binding conditions of any grant or permit issued to the permittee. USEPA revised the NPDES permit during the 1999 modification in order to address the reasonable and prudent measures identified by the USFS. These modification included whole effluent toxicity testing and ambient water quality monitoring.

Because State of Idaho waters are involved in this permitting action, the provisions of Section 401 of the Clean Water Act apply. In accordance with 40 CFR §124.10(c)(1), public notice of the draft permit was provided to the State of Idaho agencies having jurisdiction over fish, shellfish, and wildlife resources. As part of the certification, the State of Idaho was asked to certify the mixing zone used in calculating the effluent limitations in the permit.

VII. IDENTIFICATION OF STAKEHOLDERS

The following facilities have been identified in the Mid-Snake and Upper Snake Rock TMDLs as permittees in the municipality industry of the Upper Snake Rock subbasin. They are listed here according to their category of discharge.

1. FACILITIES THAT DO NOT DISCHARGE

These are facilities that use land application, pre-treatment agreement(s), or total containment. These include the following facilities:

| <u>FACILITY NAME</u> | <u>NPDES NUMBER</u> |
|------------------------------|-------------------------|
| Hazelton | LA-000023 |
| Kimberly | Pre-treatment agreement |
| Eden | Total containment |
| Castleford | Total containment |
| Wendell | LA-000076 |
| Murtaugh | LA-000147 |
| Crossroads of Idaho (Jerome) | LA-000096 |

2. FACILITIES THAT DISCHARGE SEASONALLY

These are facilities that discharge seasonally, but not to the Middle Snake River. These include the following facilities:

| <u>FACILITY NAME</u> | <u>NPDES NUMBER</u> |
|----------------------|---------------------|
| Filer | 0020061 + LA-000149 |

3. FACILITIES THAT DISCHARGE INDIRECTLY

These are facilities that discharge but not to the Middle Snake River. These include the following facilities:

| <u>FACILITY NAME</u> | <u>NPDES NUMBER</u> |
|----------------------|----------------------|
| Buhl | 002066-1 |
| Hansen | 002244-6 |
| Jerome | 002016-8 + LA-000149 |

4. FACILITIES THAT DISCHARGE DIRECTLY

These are facilities that discharge directly to the Middle Snake River. These include the following facilities:

| <u>FACILITY NAME</u> | <u>NPDES NUMBER</u> |
|----------------------|------------------------------|
| Twin Falls | 002127-0 |
| Hagerman | 002594-1 + Total containment |

VIII. REASONABLE ASSURANCE

The USEPA currently retains "primacy" for the NPDES permits in Idaho. This implies that the USEPA is responsible for the permitting and enforcement of all NPDES permits in the state. Municipalities are defined by federal statute as point sources and thus fall under the NPDES program.

The Idaho Department of Environmental Quality (IDEQ) is responsible for Clean Water Act §401 water quality certification of all NPDES permits in Idaho. This implies that in order to certify the NPDES permits for municipalities, the individual NPDES permit must meet and protect for Idaho water quality standards, which includes designated and existing beneficial uses.

As part of a Performance Partnership Agreement the USEPA and the IDEQ have agreed to conduct a certain number of inspections per year, as negotiated. The inspections are handled as "surprise" inspections and follow certain protocols as defined by the USEPA and the IDEQ.

Under the Upper Snake Rock TMDL and the Mid-Snake TMDL, a principal objective is to allocate allowable loads among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. Since both TMDLs reasonably assure that nonpoint source control measures will achieve expected load reductions, the appropriate control mechanism used for point sources is the NPDES permit. As part of this effort, the USEPA has recently made effective in Idaho a reissuance of individual municipality permits that by statute protects for human health and the environment. As part of that effort the IDEQ-TFRO has issued a Clean Water Act §401 water quality certification for each individual NPDES municipality permit.

A. IMPLEMENTATION EFFECTIVENESS: MONITORING PLAN

As described in the Upper Snake Rock TMDL (p. 229), the reasonable assurance that the municipality industry facilities will meet water quality standards is based on two monitoring components. First, the requirements for compliance monitoring are specifically defined in the NPDES permit. And, second, the use of the municipality NPDES monitoring data in the overall trend monitoring plan of the Upper Snake Rock subbasin. Monitoring provides the information needed to evaluate management actions. The generation of new data is a necessary requirement that will be used in the development of a wasteload allocation prior to Year 5 of the TMDL plan, and will be used in the overall assessment of the Middle Snake River and/or its 303(d) tributaries.

The monitoring requirements for the municipality industry are defined specifically in the individual NPDES permit. The Upper Snake Rock TMDL (§3.6.3 Trend Monitoring Plan) lays out the major objectives for usage of point source monitoring in conjunction with a trend monitoring plan. These objectives are described in Part O, Introduction, VIII. Reasonable Assurance, A. Implementation Effectiveness Monitoring Plan.

As part of the monitoring requirements of the Mid-Snake TMDL and the Upper Snake Rock TMDL, the following monitoring requirements shall be enforced for the life of the permit:

Table 5. Municipality NPDES permit monitoring requirements

| MONITORING REQUIREMENTS | FILER | BUHL | HANSEN | JEROME | HAGERMAN | TWIN FALLS |
|---------------------------|-----------------|----------|----------|---------------|----------|-------------|
| Required parameters | X | X | X | X + DO | X | X - Temp |
| Sludge management | X | X | X | X + Site Plan | X | Part of BMP |
| QA Plan | 60 days | 120 days | 120 days | 60 days | 120 days | 60 days |
| BMP Plan | 180 days | 180 days | 180 days | 180 days | 180 days | Feb 2000 |
| TP compliance schedule | August 30, 2004 | | | | | |
| Annual report of progress | January | | | | | |
| Ambient monitoring | - | - | - | - | - | X |

| | | | | | | |
|-----------------------|---|---|---|---|---|---|
| Toxicity requirements | - | - | - | - | - | X |
| Pretreatment program | - | - | - | - | - | X |

The required parameters for the monitoring requirements include flow, BOD5, TSS, fecol coliform, total residual chlorine, NH3, TP, TKN, NOX, pH, and temperature (Temp).

The sludge management requirements indicates that the permittee shall handle and dispose of sewage sludge such that the public health and the environment are protected from any reasonably anticipated adverse effects due to any toxic pollutants that may be present. The permittee shall ensure that pollutants from the sewage sludge do not reach surface waters of the State of Idaho or waters of the United States.

The quality assurance requirements state that the permittee shall develop a QA Plan that shall be submitted to USEPA for review and comment.

The BMP Plan states that the permittee shall develop and submit a BMP Plan and a schedule for implementation and shall include measures which prevent or minimize the potential for the release of nutrients to the Middle Snake River or other natural waterbody.

The TP schedule of compliance calls for the permittee to achieve compliance with the TP effluent limitations by the end of Year 5 of issuance of the permit.

The annual report of progress calls for the permittee to submit an annual report of progress that outlines the progress made towards reaching the compliance date for TP effluent limitations. The report shall include an assessment of the previous year of TP data and comparison to the final effluent limitations, along with milestones targeted for the upcoming year. The report shall be submitted along with the DMRs.

The ambient monitoring calls for the permittee to do an annual receiving water monitoring program during low flow periods at upstream and downstream stations sampled concurrently for flow, TSS, fecal coliform, total chlorine residual, DO, pH, temperature, unionized ammonia, NOX, and TP.

The toxicity requirements calls for the permittee to conduct two chronic toxicity tests two times per year, once in April and once in October, throughout the term of the permit. Toxicity tests shall be done for BOD5, TSS, fecal coliform, alkalinity, NH3, conductivity, DO, hardness, pH, temperature, and total residual chlorine.

And finally, the pretreatment program calls for the permittee to implement its pretreatment program in accordance with its original pretreatment program submission of 1994; any program amendments submitted thereafter and approved by USEPA; and, the General Pretreatment Regulations and any amendments thereafter.

B. MAINTAINING MANAGEMENT ACTIONS OVER TIME

Maintaining management actions over time are identified as short-term and long-term goals in the Upper Snake Rock TMDL (§3.6.1, Table 114). Control actions and/or management actions as measures for municipality facilities are linked to their NPDES permits. Permit limits based on TMDLs are called water quality-based limits. As such the development of a wasteload allocation for municipalities establishes the level of effluent quality necessary to protect water quality in the receiving stream and ensure attainment of water quality standards. The permitting process is iterative in that each five (5) years the permit is reassessed and/or reissued. This process sets the short-term (five years) and

long-term (10 year and 15 years) in place for when the NPDES permit will be re-evaluated according to the environmental concerns for the receiving waterbody. The Upper Snake Rock TMDL supports this approach and has developed its short-term and long-term goals around the five (5) year permit cycle.

C. EVALUATION OF IMPLEMENTATION EFFECTIVENESS

As described in the Proposed Watershed Reduction Plan for the Wastewater Treatment Industry, evaluation of implementation effectiveness will be governed through a monitoring program that involves NPDES compliance monitoring and an overall watershed trend monitoring plan. In addition, an annual progress report will be developed by the industry and submitted to IDEQ-TFRO.

IDEQ-TFRO will evaluate the implementation effectiveness of the municipality industry based on the data provided through their compliance monitoring and the overall watershed trend monitoring plan. The Middle Snake Technical Advisory Committee will provide technical assistance to IDEQ-TFRO in its evaluation of implementation effectiveness. An annual report developed by IDEQ-TFRO will be presented to the Middle Snake Watershed Advisory Committee to receive their comments.

Part 3

Food Processor Industry's Implementation Plan

I. INTRODUCTION

The food processor industry's implementation plan for the Upper Snake Rock TMDL involves a combination of NPDES permit requirements for discharging facilities as defined by USEPA, best management practices as defined in their Best Management Practices Plan under their NPDES permit, facilities with land application permits, and facilities that are self-contained with no discharge to waterbodies. USEPA holds "primacy" in Idaho for the food processors NPDES permits. IDEQ is the designated agency (as defined by State statute) that leads the industry in the development of best management practices. IDEQ is also the designated agency for land application of wastewater and sludges. As part of their implementation plan, the food processors industry utilizes the following documents:

1. NPDES Food processor Permit and Fact Sheet:
Effective - dependent on food processor
Expires - dependent on food processor
Signed - dependent on food processor
2. Proposed Watershed Reduction Plan for the Food Processing Industry (from the Mid-Snake TMDL, 1997).
3. The Middle Snake River Watershed Management Plan, Phase 1 TMDL, Total Phosphorus (1997).
4. The Upper Snake Rock Watershed Management Plan (1999).

IDEQ-TFRO has accepted and utilized these documents as part of the food processor industry's implementation plan.

The NPDES program is the wastewater discharge permitting program conceived as part of the Clean Water Act. The purpose of the NPDES program is to protect human health and the environment. The Clean Water Act requires that all "point sources" discharging "pollutants" into "waters of the United States" must obtain a NPDES permit. The term "waters of the United States" is defined broadly in the Clean Water Act. "Waters of the United States" include navigable waters, tributaries to navigable waters, interstate waters, and the oceans out to 200 miles. These waters also include intrastate waters that are used by interstate travelers for recreation or other purposes, as a source of fish or shell fish sold in interstate commerce, or for industrial purposes by industries engaged in interstate commerce.

II. PUBLIC INVOLVEMENT

The food processor industry is a technologically diverse industry in the Upper Snake Rock subbasin. It includes facilities that discharge to waterbodies, facilities with land application, and facilities that do not discharge to waters of the State of Idaho or to waters of the United States. Amongst the various food processors are the J. R. Simplot Company and McCain Foods Incorporated. These facilities discharge directly to the Snake River but above the Milner Pool area. Initially they were

defined and included in the Mid-Snake TMDL and the Upper Snake Rock TMDL. They are now defined and included in the Lake Walcott TMDL since this is the area in which their discharge truly occurs. Thus, the food processor industry in the Upper Snake Rock subbasin is made up of facilities that do not discharge to waterbodies and facilities with land application permits.

As leaders of their industry, the Simplot and McCain food processors continue to participate in the Mid-Snake WAG. Thus, the food processor industry continues to be represented in the Middle Snake Watershed Advisory Group (Mid-Snake WAG) by Simplot and McCain. This representation has occurred since the first inceptions of the Mid-Snake Study Group in the late 1980s. Simplot and McCain also participate with the Middle Snake Technical Advisory Committee (Mid-Snake TAC).

The following documents/actions have gone through the public comment process and have allowed for industry input and the general public as a whole.

1. NPDES Food Processor Permit and Fact Sheet
2. Proposed Watershed Reduction Plan for the Food Processing Industry (from the Mid-Snake TMDL, 1997).
3. The Middle Snake River Watershed Management Plan, Phase 1 TMDL, Total Phosphorus (1997).
4. The Upper Snake Rock Watershed Management Plan (1999).

The final draft of the Upper Snake Rock Implementation Plan will go through a public comment period in the summer of 2001.

III. IMPLEMENTATION TIMELINE

The Upper Snake Rock TMDL has the short-term and long-term goals for all point sources on a pollutant basis. These are found in Table 114 (page 229) of the TMDL and are summarized in Table 6.

Table 6. Short- and long-term goals for the NPDES food processor industry on a pollutant basis

| POLLUTANT | YEAR 1 | YEAR 3 | YEAR 5 | YEAR 8 | YEAR 10 | YEAR 15 |
|---------------------------|---|---|--------------------------------|--------------------------------|-----------------------------|-----------------------------|
| TP | Permit Issued | Reallocation of TP loads | Meet target reductions | Maintain permit limits | Reassessment of allocations | Reassessment of allocations |
| | | Land Application permits reviewed and maintained by IDEQ. | | | | |
| TSS | Permit Issued | Allocation of TSS loads | Meet target reductions | Maintain permit limits | Reassessment of allocations | Reassessment of allocations |
| | | Land Application permits reviewed and maintained by IDEQ. | | | | |
| Pathogens | Permit Issued | Reallocation of pathogen loads | Meet target reductions | Maintain permit limits | Reassessment of allocations | Reassessment of allocations |
| | | Land Application permits reviewed and maintained by IDEQ. | | | | |
| NOX, NH3, DO, Temperature | Monitoring | Assessment of loads for possible TMDL | Review and assessment of loads | Review and assessment of loads | | |
| Flow | No Flow TMDL; conservation flows encouraged | | | | | |

The overall implementation timeline is based on the five (5) year reissuance schedule for the NPDES permits. Therefore, all implementation scheduling for short-term and long-term milestones shall be based on the reissuance schedule.

IV. PROPOSED MANAGEMENT ACTIONS AND LINKAGE TO BENEFICIAL USES

The proposed management actions of the food processing industry may be summarized in the Mid-Snake TMDL, their NPDES permit, or their land application permit.

Proposed management actions from the Mid-Snake TMDL are as follows:

1. Reduce sodium acid pyrophosphate usage in order to reduce phosphorus.
2. Research to identify, segregate, and treat phosphorus in waste streams.
3. Research and develop best management practices.
4. Plant operator education.
5. Upgrades of waste management facilities.
6. Improved operation and maintenance procedures.
7. Certifications.

The NPDES permit requires the development and implementation of a Best Management Practices Plan (or BMP Plan) on permitted facilities that achieve certain objectives and requirements. Through the implementation of a BMP Plan a permittee shall prevent or minimize the generation and discharge of wastes and pollutants from the facility to the receiving waters and ensure disposal or land application of wastes in such a way as to have a minimal environmental impact. The general objectives and requirements of the BMP Plan (as described in the permit) are:

1. A statement of the permittee's BMP policy.
2. Identification of TP sources and an assessment of TP discharges within the facility.
3. Specific management practices and standard operating procedures to achieve the above purpose, including, but not limited to:
 - a. Reduction of sodium acid pyrophosphate (SAPP) usage.
 - b. Research to identify, segregate, and treat TP in waste stream.
 - c. Research and development of BMPs.
 - d. Plant operator education.
 - e. Potential upgrades of waste management facilities.
 - f. Improved operation and maintenance procedures.
4. Good housekeeping procedures.
5. Facility and equipment maintenance.

6. Inspections and records.
7. The permittee shall submit the BMP Plan to USEPA within 180 days from the effective date of the permit modification. The permittee shall maintain a copy of the BMP Plan at its facility and shall make the plan available to representatives of USEPA or IDEQ upon request.
8. The permittee shall amend the BMP Plan whenever there is a change in the facility or in the operation of the facility, which materially increases the operation of pollutants and their release or potential release to the receiving waters.

The land treatment of wastewater in Idaho has been used extensively. Food processing industries have been primary users of this type of wastewater treatment method. However, it is extending to other industries and to municipalities. In 1996 the Handbook for Land Application of Municipal and Industrial Wastewater was published by IDEQ and is currently the "handbook" on land application policies in Idaho.

At the present time there is no evidence to indicate that impacts to beneficial uses and/or water quality standards are occurring from non-discharging food processing facilities. Since their discharge is "non-discharging" their load allocation is zero for sediment, phosphorus, bacteria, or any other pollutant.

At the present time there is no evidence to indicate that impacts to beneficial uses and/or water quality standards are occurring from facilities discharging to land application sites. These permitted facilities must comply with the Handbook for Land Application of Municipal and Industrial Wastewater (1996) as specifically defined in their land application permit. Food processing industries have been the primary users of the land application process in Idaho. The Handbook guidelines were developed to protect groundwater resources and by default any surface waterbody that is listed (or could be listed) on the 303(d) list.

V. COMPLIANCE ACTIONS

Compliance actions for the food processor industry are dependent on their NPDES permit and the TMDLs involved in the Upper Snake Rock subbasin whether the food processing facility is NPDES permitted or not. As described in the Proposed Watershed Reduction Plan for the Food Processing Treatment Industry for the Middle Snake River, compliance actions for the food processor industry includes NPDES permits requirements through USEPA, land application permits through IDEQ, and pretreatment agreements with wastewater treatment plants (where appropriate). These compliance actions are described in Table 29 of the Mid-Snake TMDL.

The Upper Snake Rock TMDL is specific for TSS, TP, and pathogens for all the food processing facilities in the Upper Snake Rock subbasin. Additional parameters are described in the individual permits for each facility.

The permittee must comply with all conditions of their individual permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification or for denial of a permit renewal application. The permittee shall give advance notice to USEPA and IDEQ-TFRO of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

The permittee (both NPDES and land application) shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of their individual permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. Facilities that are not permitted are required to implement best management practices to contain any possible discharge from their facility.

According to the NPDES permit, the permittee shall achieve compliance with the TP effluent limitations by August 30, 2004. In addition, the permittee shall submit an Annual Report of Progress, which outlines the progress made towards reaching the compliance date for TP effluent limitations. The annual report shall include an assessment of the previous year of TP data and comparison to final effluent limitations, a report on progress made towards meeting the final limitations and milestones targeted for the upcoming year. The Annual Report of Progress shall be submitted with the January DMR.

VI. THREATENED AND ENDANGERED SPECIES PROTECTION

See Part 0, Introduction, VI. Threatened and Endangered Species.

As part of the 1999 NPDES modification for all facilities, USEPA completed a biological evaluation analyzing the effects of this permit on listed species. The evaluation led to consultation with USFWS under section 7 of the Endangered Species Act regarding the impact of the permit on the listed species. The USFWS subsequently issued a Biological Opinion in 1999 on the effects of USEPA issuing the NPDES permits to the food processor industry to permittees that are authorized to discharge into the Middle Snake River. The opinion of the USFWS is that the proposed action will not likely to jeopardize the continued existence of listed snail species in the action area. The USFWS identified eight (8) "reasonable and prudent measures" that must be addressed by USEPA in order to minimize incidental take. Measures listed in the Incidental Take Statement are "non-discretionary, and must be implemented by the USEPA so that they become binding conditions of any grant or permit issued to the permittee. USEPA revised the NPDES permit during the 1999 modification in order to address the reasonable and prudent measures identified by the USFWS. These modifications included whole effluent toxicity testing and ambient water quality monitoring.

Because State of Idaho waters are involved in this permitting action, the provisions of Section 401 of the Clean Water Act apply. In accordance with 40 CFR §124.10(c)(1), public notice of the draft permit was provided to the State of Idaho agencies having jurisdiction over fish, shellfish, and wildlife resources. As part of the certification, the State of Idaho was asked to certify the mixing zone used in calculating the effluent limitations in the permit.

VII. IDENTIFICATION OF STAKEHOLDERS

The following facilities have been identified in the Mid-Snake and Upper Snake Rock TMDLs as permittees in the food processor industry of the Upper Snake Rock subbasin. They are listed here according to their category of discharge.

1. FACILITIES THAT DO NOT DISCHARGE

These are facilities that do not discharge but have total containment. These include the following facilities:

| <u>FACILITY NAME</u> | <u>LOCATION</u> |
|----------------------|-----------------|
| Roast Potato Co. | Eden |
| A.C. Enterprises | Hazelton |
| IDA-Pride Potatoes | Hazelton |
| Heitzman Product Co. | Jerome |
| Schutte Potato | Jerome |
| J.R. Simplot | Jerome |
| Eagle Snacks Inc. | Twin Falls |

2. FACILITIES THAT DISCHARGE TO LAND APPLICATION SITES

These are facilities that discharge to land application sites. These include the following facilities:

| <u>FACILITY NAME</u> | <u>LOCATION</u> |
|-------------------------------|-----------------|
| The Amalgamated Sugar Co. | Twin Falls |
| Avonmore West | Twin Falls |
| Seneca Foods Corp. | Buhl |
| Independent Meat | Twin Falls |
| Jerome Cheese | Jerome |
| Western Idaho Potato | Jerome |
| Russett Valley Marketing | Kimberly |
| Keegan Inc. | Twin Falls |
| A.E. Staley Manufacturing Co. | Murtaugh |

VIII. REASONABLE ASSURANCE

The USEPA currently retains "primacy" for the NPDES permits in Idaho. This implies that the USEPA is responsible for the permitting and enforcement of all NPDES permits in the state. Food processors are defined by federal statute as point sources and thus fall under the NPDES program.

The Idaho Department of Environmental Quality (IDEQ) is responsible for Clean Water Act §401 water quality certification of all NPDES permits in Idaho. This implies that in order to certify the NPDES permits for municipalities, the individual NPDES permit must meet and protect for Idaho water quality standards, which includes designated and existing beneficial uses.

As part of a Performance Partnership Agreement the USEPA and the IDEQ have agreed to conduct a certain number of inspections per year, as negotiated. The inspections are handled as "surprise" inspections and follow certain protocols as defined by the USEPA and the IDEQ.

Under the Upper Snake Rack TMDL and the Mid-Snake TMDL, a principal objective is to allcate allowable loads among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. Since both TMDLs reasonably assure that nonpoint source control measures will achieve expected load reductions, the appropriate control mechanism used for point sources is the NPDES permit. As part of this effort, the USEPA has recently made effective in Idaho a reissuance of individual food processor permits that by statute protects for human health and the environment. As part of that effort the IDEQ-TFRO has issued a Clean Water Act §401 water quality certification for each individual NPDES food processor permit.

Wasteload allocations for these facilities at the present time are zero discharge for all pollutants. Thus no discharge to any waterbody is permitted under the Upper Snake Rock TMDL.

1. FACILITIES THAT DO NOT DISCHARGE

| <u>FACILITY NAME</u> | <u>LOCATION</u> | <u>LOAD, lbs/day</u> |
|----------------------|-----------------|----------------------|
| Roast Potato Co. | Eden | 0 |
| A.C. Enterprises | Hazelton | 0 |
| IDA-Pride Potatoes | Hazelton | 0 |
| Heitzman Product Co. | Jerome | 0 |
| Schutte Potato | Jerome | 0 |
| J.R. Simplot | Jerome | 0 |
| Eagle Snacks Inc. | Twin Falls | 0 |

1. FACILITIES WITH LAND APPLICATION PERMITS

| <u>FACILITY NAME</u> | <u>LOCATION</u> | <u>LOAD, lbs/day</u> |
|-------------------------------|-----------------|----------------------|
| The Amalgamated Sugar Co. | Twin Falls | 0 |
| Avonmore West | Twin Falls | 0 |
| Seneca Foods Corp. | Buhl | 0 |
| Independent Meat | Twin Falls | 0 |
| Jerome Cheese | Jerome | 0 |
| Western Idaho Potato | Jerome | 0 |
| Russett Valley Marketing | Kimberly | 0 |
| Keegan Inc. | Twin Falls | 0 |
| A.E. Staley Manufacturing Co. | Murtaugh | 0 |

A. IMPLEMENTATION EFFECTIVENESS MONITORING PLAN

As described in the Upper Snake Rock TMDL (p. 229), the reasonable assurance that the food processor industry facilities will meet water quality standards is based on two monitoring components. First, the requirements for compliance monitoring are specifically defined in the NPDES permit. And, second, the use of the food processor NPDES monitoring data in the overall trend monitoring plan of the Upper Snake Rock subbasin. Monitoring provides the information needed to evaluate management actions. The generation of new data is a necessary requirement that will be used in the development of a wasteload allocation prior to Year 5 of the TMDL plan, and will be used in the overall assessment of the Middle Snake River and/or its 303(d) tributaries.

The monitoring requirements for the food processor industry are defined specifically in the individual NPDES permit. The Upper Snake Rock TMDL (\$3.6.3 Trend Monitoring Plan) lays out the major objectives for usage of point source monitoring in conjunction with a trend monitoring plan.

The Lake Walcott TMDL was approved in Year 2000 and took into account the food processors that discharge into the Snake River above the Milner Pool. These facilities are no longer a part of the Mid-Snake TMDL or the Upper Snake Rock TMDL. They will continue to meet the TP goals of the Mid-Snake TMDL, but are required an additional 17% reduction under the Lake Walcott TMDL.

For those facilities that do not discharge or which discharge to land application sites, their monitoring requirements are none or as defined in the land application permit, respectively.

B. MAINTAINING MANAGEMENT ACTIONS OVER TIME

Maintaining management actions over time are identified as short-term and long-term goals in the Upper Snake Rock TMDL (§3.6.1, Table 114). Control actions and/or management actions as measures for food processor facilities are linked to their NPDES permits. Permit limits based on TMDLs are called water quality-based limits. As such the development of a wasteload allocation for municipalities establishes the level of effluent quality necessary to protect water quality in the receiving stream and ensure attainment of water quality standards. The permitting process is iterative in that each five (5) years the permit is reassessed and/or reissued. This process sets the short-term (five years) and long-term (10 year and 15 years) in place for when the NPDES permit will be re-evaluated according to the environmental concerns for the receiving waterbody. The Upper Snake Rock TMDL supports this approach and has developed its short-term and long-term goals around the five (5) year permit cycle.

All other food processing facilities that do not discharge or which discharge to land application sites will implement best management practices which protect for groundwater and surface waterbodies.

C. EVALUATION OF IMPLEMENTATION EFFECTIVENESS

As described in the Proposed Watershed Reduction Plan for the Wastewater Treatment Industry, evaluation of implementation effectiveness will be governed through a monitoring program that involves NPDES compliance monitoring and an overall watershed trend monitoring plan. In addition, an annual progress report will be developed by the industry and submitted to IDEQ-TFRO.

IDEQ-TFRO will evaluate the implementation effectiveness of the food processor industry based on the data provided through their compliance monitoring and the overall watershed trend monitoring plan. The Middle Snake Technical Advisory Committee will provide technical assistance to IDEQ-TFRO in its evaluation of implementation effectiveness. An annual report developed by IDEQ-TFRO will be presented to the Middle Snake Watershed Advisory Committee to receive their comments.

Part 4

Hydroelectric Industry's Implementation Plan

I. INTRODUCTION

The hydroelectric industry's implementation plan for the Upper Snake Rock TMDL involves a combination of FERC license requirements for hydropower facilities as defined by the Federal Energy Regulatory Commission, best management practices as defined in their Best Management Practices Plan according to the Mid-Snake and Upper Snake Rock TMDLs, and those facilities that have undergone a permit reissuance with certain terms and conditions to their FERC relicense. The FERC holds "primacy" in Idaho for the hydroelectric licenses. IDEQ as the designated agency provides 401 water quality certification to meet beneficial uses and/or water quality standards. As part of their implementation plan, the hydroelectric industry utilizes the following documents:

1. Hydroelectric FERC License
2. Proposed Watershed Reduction Plan for the Hydroelectric Industry (from the Mid-Snake TMDL, 1997).
3. The Middle Snake River Watershed Management Plan, Phase 1 TMDL, Total Phosphorus (1997).
4. The Upper Snake Rock Watershed Management Plan (1999).

IDEQ-TFRO has accepted and utilized these documents as part of the hydroelectric industry's implementation plan.

II. PUBLIC INVOLVEMENT

The hydroelectric industry is a technologically diverse industry in the Upper Snake Rock subbasin. It includes facilities that are on the main stem of the Middle Snake River as well as smaller facilities that are on spring returns, irrigation drops or returns.

The Idaho Power Company is the lead representative of the hydroelectric industry in the Middle Snake Watershed Advisory Group (Mid-Snake WAG). This representation has occurred since the first inceptions of the Mid-Snake Study Group in the late 1980s. Idaho Power Company also represents the hydroelectric industry in the Middle Snake Technical Advisory Committee (Mid-Snake TAC).

The following documents/actions have gone through the public comment process and have allowed for industry input and the general public as a whole.

1. Hydroelectric FERC license
2. Proposed Watershed Reduction Plan for the Hydroelectric Industry (from the Mid-Snake TMDL, 1997).
3. The Middle Snake River Watershed Management Plan, Phase 1 TMDL, Total Phosphorus (1997).

4. The Upper Snake Rock Watershed Management Plan (1999).

The final draft of the Upper Snake Rock Implementation Plan will go through a public comment period in the summer of 2001.

III. IMPLEMENTATION TIMELINE

The hydroelectric industry is considered a nonpoint source because it does not fit the statutory definition of a point source. Therefore, by default the hydroelectric industry is a nonpoint source. However, as a nonpoint source the hydroelectric industry differs from many other water user industries that utilize the river or waterways. Specifically, the hydroelectric projects are not a source of nutrients. However, impoundment of a river, or reducing flows in segments of a river can affect the capabilities of a river to transport and process nutrients that are in the water column. The affect on transport and nutrient processing coupled with various water user industry pollutant inputs and associated biological activity, can potentially place beneficial uses and/or water quality standards at risk. Eutrophication as productivity enrichment thus becomes a major water quality concern. "The hydroelectric industry alters the physical characteristics of the Snake River, which in turn affects water quality and the biotic communities. Riverine characteristics that are frequently changed are water velocity, discharge, water depth, and water retention times, which enhance eutrophication, changes in biotic communities, and alteration of habitat for aquatic species" (IDEQ-TFRO 1997 [p 73]).

The Upper Snake Rock TMDL has the short-term and long-term goals for all nonpoint sources on a pollutant basis. Since the hydroelectric industry does not produce pollutants, short-term and long-term goals are based in part on what is in the FERC license and a consent order administered by IDEQ for 401 water quality certification. These goals are summarized in Table 7.

Table 7. Short- and long-term goals for the FERC hydroelectric industry on a pollutant basis

| POLLUTANT | YEAR 1 | YEAR 3 | YEAR 5 | YEAR 8 | YEAR 10 | YEAR 11 |
|------------------|--|---------------|---------------|---------------|----------------|----------------|
| DO | Annual monitoring from April 1 to October 30 | | | | | Reassessment |
| Temperature | Annual monitoring from April 1 to October 30 | | | | | Reassessment |
| Progress Report | Annual progress report | | | | | Reassessment |
| Flow | No Flow TMDL; conservation flows encouraged | | | | | |

IV. PROPOSED MANAGEMENT ACTIONS AND LINKAGE TO BENEFICIAL USES

The hydroelectric FERC license requires the protection of beneficial uses and/or state water quality standards.

V. COMPLIANCE ACTIONS

Compliance actions for the hydroelectric industry are dependent on their FERC permit and the TMDLs involved in the Upper Snake Rock subbasin. As described in the Proposed Watershed Reduction Plan for the Hydroelectric Industry for the Middle Snake River, management actions for the hydroelectric industry include the following:

1. Participate on Mid-Snake WAG committees.

2. Monitor DO and temperature levels.
3. Develop environmental evaluations and protection, mitigation, and enhancement plans in conjunction with relicensing.
4. Removal of aquatic vegetation (trash) at the Upper Solmon Falls facility.
5. Evaluate minimum target flows for river bypass reaches.
6. Support Idaho Power's energy conservation program.
7. Possible participation in beneficial water quality projects.

In addition to these management actions, the hydroelectric industry has certain compliance actions. These compliance actions include the following:

1. FERC permit and/or license
2. Consent orders
3. Water quality certifications
4. Compliance schedules

VI. THREATENED AND ENDANGERED SPECIES PROTECTION

See Part 0, Introduction, VI. Threatened and Endangered Species.

Data compiled by the Idaho Power Company on the Middle Snake River suggests that flow is the dominant factor affecting water quality parameters (IPC 1995a [p 22]). Thus, water volume may potentially affect threatened and endangered species of the Middle Snake River. Since the Middle Snake River impoundments are operated on a "24-hour-run-of-the-river" basis, thus having no storage capabilities, flow fluctuations over a 24-hour period may have a serious effect on habitat use, habitat availability, and riparian vegetation (USFWS 1991 [p 2]). Limnological and aquatic studies were conducted by IPC as part of the relicensing effort to answer these and other concerns. Thus, IPC operates their "projects to maintain existing water quality levels, or water quality levels which fall within State water quality criteria, whichever level of water quality is highest, and to meet water quality needs for protection of fish, wildlife, and botanical resources" (USFWS 1991 [p 4]).

Because State of Idaho waters are involved in this permitting action, the provisions of Section 401 of the Clean Water Act apply. In accordance with 40 CFR §124.10(c)(1), public notice of the draft permit was provided to the State of Idaho agencies having jurisdiction over fish, shellfish, and wildlife resources. As part of the certification, the State of Idaho was asked to certify the FERC license.

VII. IDENTIFICATION OF STAKEHOLDERS

The following hydroelectric projects have been identified in the Mid-Snake and Upper Snake Rock TMDLs as FERC licensed facilities of the Upper Snake Rock subbasin:

| <u>FACILITY</u> | <u>HYDROPOWER INITIATED</u> | <u>LICENSE EXPIRATION</u> |
|-----------------|-----------------------------|---------------------------|
| Shoshone Falls | 1907 | 1999 |

| | | |
|--------------------|---------------------------------|------|
| Twin Falls | 1935 | 2040 |
| Upper Salmon Falls | 1947 | 1998 |
| Bliss | 1948 | 1998 |
| Lower Salmon Falls | 1949 | 1997 |
| Milner Dam | 1905 (built); 1992 (hydropower) | 2038 |

In addition to the major six (6) facilities on the Middle Snake River, there are seven (7) additional potential hydroelectric development sites that have been evaluated for development since 1990. These include:

| <u>FACILITY</u> | <u>HYDROPOWER INITIATED</u> | <u>LICENSE EXPIRATION</u> |
|-----------------|-----------------------------|---------------------------|
| Star Falls | Decision pending | - |
| Auger Falls | 1991 (Proposed) | 2041 |
| Boulder Rapids | License not being pursued | - |
| Empire Rapids | License not being pursued | - |
| Kanaka Rapids | License not being pursued | - |
| A. J. Wiley | License not being pursued | - |
| Dike Hydro | Decision pending | - |

At the end of 1992 there existed 37 small hydroelectric generating facilities operating in Gooding, Twin Falls, and Jerome Counties. These small hydroelectric facilities are on spring returns, irrigation drops or returns, and have no measurable impact to the Middle Snake River water quality. These facilities were in part developed because of the Public Utility Regulatory Policy Act of 1978 (PURPA). This act encouraged competitive alternatives to utility generation and the use of all resources effectively for the generation of electricity.

As of June 6, 2001 the following proposed facilities have filed with the FERC for hydropower generation in Gooding, Twin Falls, and Jerome Counties. IDEQ-TFRO is currently undergoing review of these projects for any environmental impacts to 303(d) waterbodies.

| <u>FACILITY NAME</u> | <u>DATE FILED</u> | <u>FILED PURSUANT TO:</u> |
|--|-------------------|--|
| Y Canal Hydropower, Inc. | Mar 30, 2001 | Federal Power Act, 16 USC §791(a)-825(r) |
| Malad High Drop Hydropower, Inc. | Feb 20, 2001 | Federal Power Act, 16 USC §791(a)-825(r) |
| Auger Falls Hydroelectric Project | Jan 11, 2001 | Federal Power Act, §4(f) |
| Star Falls Hydroelectric Project | Jan 23, 2001 | Federal Power Act, §4(f) |
| Bliss-Gooding Highway Hydropower, Inc. | Mar 30, 2001 | Federal Power Act, 16 USC §791(a)-825(r) |
| "Boulder Rapids" Hydropower Project | Feb 12, 2001 | Federal Power Act, §4(f) |
| Powercat Production Facility | May 14, 2001 | Federal Power Act, 16 USC §791(a)-825(r) |

VIII. REASONABLE ASSURANCE

As previously described, the FERC currently retains "primacy" for their permits in Idaho. This implies that the FERC is responsible for the permitting and enforcement of all FERC permits in the state. The Idaho Department of Environmental Quality (IDEQ) is responsible for Clean Water Act §401 water quality certification of all FERC permits in Idaho. This implies that in order to certify the FERC permits for hydroelectric facilities, the individual FERC permit must meet and protect for Idaho water quality standards, which includes designated and existing beneficial uses.

Under the Upper Snake Rock TMDL and the Mid-Snake TMDL, a principal objective is to allocate allowable loads among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. Since both TMDLs reasonably assure that nonpoint source

control measures will achieve expected load reductions, the appropriate control mechanism used for hydroelectric facilities is the FERC permit and those best management practices or actions that the facilities have agreed to in their hydroelectric industry plan. For the hydroelectric industry, the allowable loads are zero since they do not discharge pollutants.

A progress report (Progress Report for the Hydroelectric Industry Nutrient Management Plan) was submitted by IPC in August 1995 (IPC 1995b) to IDEQ-TFRO. The purpose of the report was "to summarize the status of actions taken by Idaho Power Company to implement the Hydroelectric Industry Nutrient Management Plan for the Mid-Snake River" (IPC 1995b [p 2]). IPC began implementing the hydroelectric plan along with other water user industries prior to adoption/approval by USEPA and IDEQ. Seven specific management actions were described in IPC's progress report, which provide reasonable assurance that their management actions will be implemented. These include:

1. PARTICIPATION IN THE WATERSHED ADVISORY GROUP PROCESS

IPC participated in 1995 and continues to participate (through 2001) in all meetings and public presentations related to the Mid-Snake WAG. IPC initiated nutrient monitoring to track nutrient levels at five locations in the Snake River, because they believe that its monitoring program is a key component for successful implementation of the Mid-Snake and Upper Snake Rock TMDLs. The data will be used to document changes and trends in nutrient levels in the Snake River.

2. MONITOR TEMPERATURE AND DO IN FACILITIES ON THE MID-SNAKE

IPC has been monitoring temperature and DO at the Twin Falls (10-minute time step from June 15 to October 15), Shoshone Falls, Upper Salmon Falls, Lower Salmon Falls, and Bliss projects since 1989. At Milner Dam the water is monitored on a 10-minute time step as it leaves both powerhouses from June 15 to October 15. Besides Twin Falls and Milner Dam, the remaining facilities are monitored year-round on a 10-minute time step.

3. BASED ON ENVIRONMENTAL STUDIES DEVELOP PM&E PLANS

In 1995 IPC developed a draft protection, mitigation, and enhancement (PM&E) plan that indicated (although preliminarily) substantial declines in nuisance aquatic vegetation at the Upper Salmon Falls project since 1991.

4. DEBRIS REMOVAL AT FACILITIES' INTAKES

In 1991 the installation of an automated rake at the Upper Salmon Falls "B" plant helped to remove all material that accumulates on the trash rack. The amount of debris that has accumulated since 1991 has shown a decline through 1995 prior to the onset of high spring flows in 1995.

5. EVALUATE FLOWS FOR BYPASSED REACHES

The Milner Dam, Twin Falls, Shoshone Falls, and Upper Salmon Falls projects have designs that result in bypassed reaches of the Snake River. Milner Dam has a target flow of 200 cfs. At the Twin Falls and Shoshone Falls projects, the bypassed reach of the river is limited to the falls portion of the river. Thus, IPC maintains a flow of 270 cfs over the bypassed falls during peak viewing times unless flows drop below 270 cfs. In 1995, IPC proposed a 50 cfs flow through the bypassed north channel of the Snake River for the Upper Salmon Falls project.

6. DEVELOP AND IMPLEMENT EFFICIENT ENERGY PLANS

IPC has developed and implemented an Energy Conservation Plan since 1989 saving 104,533 megawatt hours of energy savings, and 11.93 average megawatts of avoided generation. In 1994 IPC expanded the program to the agricultural sector.

7. CONSIDER PARTICIPATION IN WATER QUALITY PROJECTS

IPC participated in 1994 in the Cedar Draw Water Quality Research and Demonstration Project for the treatment of irrigation and aquaculture effluent by providing funds towards the purchase and improvement of the facility.

A. IMPLEMENTATION EFFECTIVENESS: MONITORING PLAN

As described in the Upper Snake Rock TMDL (p. 229), the reasonable assurance that the hydroelectric industry facilities will meet water quality standards is based on the following components:

1. The monitoring requirements as defined in their FERC license.
2. The use of the hydroelectric FERC monitoring data in the overall trend monitoring plan of the Upper Snake Rock subbasin. Monitoring provides the information needed to evaluate management actions. The generation of new data is a necessary requirement that will be used in the overall assessment of the Middle Snake River and/or its 303(d) tributaries.
3. Annual progress report.

In May 2000, the IPC issued their Idaho Power Company Compliance Monitoring System [for] Shoshone Falls, Upper Salmon Falls, Lower Salmon Falls, and Bliss Hydroelectric Projects as part of an agreement on 401 Water Quality Certification Consent Order between IPC and the IDEQ. The consent order includes a requirement to monitor DO and temperature at twenty-nine (29) minute intervals from April 1 through October 30 of each calendar year. Data collected from these four projects are reported to IDEQ on a monthly basis. To assure that measurements are accurate, IPC staff members visit each of the four monitoring sites once per week during the compliance season and perform QA/QC measurements and record the results. IPC provides reports that display the daily minimum DO concentration, the 7 day mean minimum DO concentration, the 30 day mean DO concentration, and the doily mean water temperature for each day of the month. The reports are provided monthly to the IDEQ-TFRO.

On March 19, 2001, the IPC issued a draft Idaho Power Company Implementation Plan for the Middle Snake River with the following provisions:

1. TMDL Development

Idaho Power Company agreed to provide \$15,000 annually of in-kind or monetary support to the Watershed Advisory Group for the Middle Snake River. Idaho Power Company has provided this level of support for the past two years, and will continue to do so until licenses for the Middle Snake Hydroelectric facilities expire or until IDEQ determines that such support is no longer necessary. In January of each year, Idaho Power Company provides a summary report of its expenditures to IDEQ.

2. Water Quality Monitoring at Hydroelectric Projects

Idaho Power Company operates permanent dissolved oxygen and temperature monitoring sites at the Shoshone Falls, Upper Salmon Falls A, Lower Salmon Falls, and Bliss hydroelectric projects. The company collects and reports data to IDEQ on a monthly basis each year from April 1 to October 30. During the monitoring time period, weekly quality assurance checks are performed at each site to ensure that accurate measurements are collected. In April of the year 2000, Idaho Power Company provided documentation of its monitoring system and its quality assurance plan to

IDEQ. Monthly compliance reporting also began in April of the year 2000. Monitoring activities will continue unchanged for the year 2001 and beyond.

3. Equipment to Remove Vegetation at Each Hydroelectric Project

Idaho Power Company has installed, and operates equipment to remove debris and vegetation that collects on the trash racks at each of the four Middle Snake hydroelectric projects.

4. Spring Source Protection

Idaho Power Company provided substantial monetary support to the State of Idaho for the acquisition of lands in the Box Canyon area. The land acquisition will help to preserve and protect valuable natural spring resources.

5. Nutrient and Sediment Load Reduction Activities

Idaho Power Company has provided \$750,000 to IDEQ in order to support the design, development, and construction of artificial wetlands, settling ponds, or other systems that will reduce the loads of nutrients and sediments entering the Snake River.

6. Long Term Water Quality Monitoring

Idaho Power Company provides annual funding for water quality monitoring along the Snake River. Each year, for ten years (beginning with 1999) the company will provide \$50,000 dollars to IDEQ for the monitoring program. IDEQ allocates the monitoring dollars as needed to collect and analyze water quality samples at a group of sites selected by the agency and the Technical Advisory committee of the Watershed Advisory Group.

The Upper Snake Rock TMDL (§3.6.3 Trend Monitoring Plan) lays out the major objectives for usage of monitoring in conjunction with a trend monitoring plan. These objectives are described in Part O, Introduction, VIII. Reasonable Assurance, A. Implementation Effectiveness Monitoring Plan.

B. MAINTAINING MANAGEMENT ACTIONS OVER TIME

Maintaining management actions over time are identified as short-term and long-term goals in the Upper Snake Rock TMDL (§3.6.1, Table 114). Control actions and/or management actions as measures for hydroelectric facilities are linked to their FERC permits and to consent orders.

In May of 1998 a consent order was administered by IDEQ in the matter of IPC FERC relicensing of the Middle Snake River hydropower projects. IPC agrees to all the terms of the consent order without the issuance of a notice of violation or the holding of a compliance conference pursuant to Idaho Code 39-108. IPC agrees that all terms of the consent order are enforceable under applicable state and federal law. The purpose and intent of the consent order is to outline specific actions that IPC shall take to mitigate water quality impacts of the hydropower facilities and to achieve compliance with Idaho water quality standards and with other proposed actions pursuant to the Mid-Snake TMDL. IPC shall conduct the following activities as part of its 1995 PM&E measures:

1. IPC shall make available money or other resources, at a minimum cost of \$15,000 per year, to assist in the further development and implementation of the Mid-Snake TMDL.

2. IPC install and operate permanent water quality monitoring equipment at each of the four facilities to monitor DO and temperature at 20 minute intervals from April 1 to October 30 of each year. The monitoring information shall be reported to IDEQ on a monthly basis.
3. IPC shall design, install and operate equipment at the Upper Salmon Falls A, Lower Salmon Falls, and Bliss facilities to remove aquatic vegetation that gathers at intake structures. IPC has already installed such equipment at the Upper Salmon Falls B facility, and shall continue to operate this equipment. The aquatic vegetation shall be removed from the river and disposed of in an acceptable manner.
4. Upon the issuance of the FERC licenses, IPC shall maintain a 50 cfs minimum flow in the North Channel at the Upper Salmon Falls facility.

IPC shall conduct the following additional activities in the manner and in the amount of funds for the acquisition of spring sources on the Middle Snake River in order to protect and enhance water quality and habitat for aquatic species:

1. IPC shall make available \$500,000 to IDEQ for the acquisition of spring sources on the Middle Snake River.
2. IPC shall pay to IDEQ \$2,500,000 when the FERC licenses for all four facilities are issued on or by January 1, 2001.
3. IPC shall pay to IDEQ \$750,000 on or before January 5, 1999 for the design, development and construction of artificial wetlands, settling ponds or other systems or facilities to prevent or reduce the nutrients and sediments entering the Middle Snake River.
4. IPC shall pay to IDEQ \$50,000 beginning on January 1, 2000 over the next 10 years to monitor long-term water quality conditions and changes as a result of the implementation of the TMDL.
5. IPC shall submit to IDEQ within 90 days of the effective date of the consent order a description of the historic mode of operation (based upon an analysis of the last 15 years of operating data) of the four facilities, including fluctuations in water levels within each impoundment and downstream from each dam that occur as a result of IPC load following practices at the four facilities. IPC shall not deviate from the historic mode of operation unless IPC first submits to the IDEQ, and IDEQ approves, a plan that describes the amount of fluctuation and the effects of such fluctuation on erosion, sediment loading to the river, water quality and aquatic habitat.

Once IPC and IDEQ entered into the consent order on May of 1998, the IDEQ issued a 401 water quality certification consistent with the terms of the consent order with respect to the four facilities on the Middle Snake River. The IDEQ's 401 water quality certification is contingent upon IPC's compliance with the terms of the 401 certification and the consent order. Certain penalties have also been added to the consent order in the event that IPC fails to commence, conduct or complete on time any activity required by the consent order, or conduct any such activity in a manner that does not comply with the terms of the consent order.

C. EVALUATION OF IMPLEMENTATION EFFECTIVENESS

As described in the Proposed Watershed Reduction Plan for the Wastewater Treatment Industry, evaluation of implementation effectiveness will be governed through a monitoring program that involves FERC compliance monitoring and an overall watershed trend monitoring plan. In addition, an annual progress report will be developed by the industry and submitted to IDEQ-TFRO.

IDEQ-TFRO will evaluate the implementation effectiveness of the hydroelectric industry based on the data provided through their compliance monitoring and the overall watershed trend monitoring plan. The Middle Snake Technical Advisory Committee will provide technical assistance to IDEQ-TFRO in its evaluation of implementation effectiveness. An annual report will be developed by IDEQ-TFRO and presented to the Middle Snake Watershed Advisory Committee for their comments.

One action that could potentially affect flow-dependent environmental resources is the March 14, 2001 FERC Order (Docket No. EL01-47-000) for removing obstacles to increased electric generation and natural gas supply in the western United States. In this order, the FERC announces certain actions it is taking within its regulatory authorities under the Federal Power Act. While these operating constraints (minimum stream flow, minimum reservoir fluctuation, run-of-river operating mode, ramping rates, and flood control) act to reduce the energy production, peaking capacity, and other power benefits, they also serve to protect resources including resident and anadromous fish, water quality, recreation, municipal and industrial water supplies, and agricultural resources. Any proposal to increase generation would need to be reviewed to minimize impacts to environmental resources. The potential to increase hydropower generation in the Upper Snake Rock subbasin is at this time in the exploratory phase, but various sources are currently researching the potential. IDEQ-TFRO will continue to monitor this action and the potential impacts the action might have on water quality.

Part 5

Industrial Industry's Implementation Plan

I. INTRODUCTION

Currently (Year 2001) there are no industrial-type industry facilities in the IDEQ-TFRO area. Those that have existed in the past are generally affiliated with food processors or with municipalities. There are currently no commodity-type processors in the Upper Snake Rock subbasin. Therefore, by default their discharge to any 303(d) stream is zero discharge and requires land application permitting or pretreatment agreements with municipalities. It is assumed that all industrial-type facilities will require an NPDES permit for discharge.

II. PUBLIC INVOLVEMENT

When industrial-type facilities begin to appear in the Upper Snake Rock subbasin, public involvement will be a component in terms of their permitting and their apportionment in the Upper Snake Rock TMDL.

III. IMPLEMENTATION TIMELINE

The Upper Snake Rock TMDL has the short-term and long-term goals for all point sources on a pollutant basis. These are found in Table 114 (page 229) of the TMDL. Until such time as industrial-type facilities appear in the Upper Snake Rock subbasin, an implementation timeline will remain open under the TMDL. However, the zero discharge provision will continue to remain as described in the Introduction.

IV. PROPOSED MANAGEMENT ACTIONS AND LINKAGE TO BENEFICIAL USES

The proposed management actions of industrial facilities will be developed at that time when these facilities appear in the Upper Snake Rock subbasin. It is assumed that these type of facilities will require an NPDES permit. The NPDES permit requires the development and implementation of a Best Management Practices Plan (or BMP Plan) on permitted facilities that achieve certain objectives and requirements. Through the implementation of a BMP Plan a permittee shall prevent or minimize the generation and discharge of wastes and pollutants from the facility to the receiving waters and ensure disposal or land application of wastes in such a way as to have a minimal environmental impact.

The land treatment of wastewater in Idaho has been used extensively, particularly by food processing facilities. However, it is extending to other industries and also to municipalities. In 1996 the Handbook for Land Application of Municipal and Industrial Wastewater was published by IDEQ and is currently the Handbook on land application policies in Idaho. Therefore, industrial-type facilities must utilize this handbook in the development of land application for their discharge. At the present time there is no evidence to indicate that impacts to beneficial uses and/or water quality standards are occurring from facilities discharging to land application sites. These permitted facilities must comply with the Handbook for Land Application of Municipal and Industrial Wastewater (1996) as specifically defined in their land application permit. The Handbook guidelines were developed to protect groundwater resources and by default any surface waterbody that is listed (or could be listed) on the 303(d) list.

V. COMPLIANCE ACTIONS

Compliance actions for the industrial-type facilities will be dependent on their NPDES permit and the TMDLs involved in the Upper Snake Rock subbasin whether the industrial-type facility is NPDES permitted or not. Compliance actions for the industrial-type facilities may include NPDES permit requirements through USEPA, land application permits through IDEQ, and pretreatment agreements with wastewater treatment plants (where appropriate). These compliance actions will be developed more fully when industrial-type facilities begin to appear in the Upper Snake Rock subbasin.

It should be noted that the Upper Snake Rock TMDL is specific for TSS, TP, and pathogens. Additional parameters may be required depending on the effluent characterization from the facility.

When and if an NPDES industrial-type facility exists in the Upper Snake Rock subbasin, the permittee must comply with all conditions of their individual permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification or for denial of a permit renewal application. The permittee shall give advance notice to USEPA and IDEQ-TFRO of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

When and if an NPDES industrial-type facility exists in the Upper Snake Rock subbasin, the permittee (both NPDES and land application) shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of their individual permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. Facilities that are not permitted are required to implement best management practices to contain any possible discharge from their facility.

When and if an NPDES industrial-type facility exists in the Upper Snake Rock subbasin, the permittee shall achieve compliance with the effluent limitations within a reasonable period of time as determined by IDEQ-TFRO and USEPA. In addition, the permittee shall submit an Annual Report of Progress, which outlines the progress made towards reaching the compliance date for effluent limitations. The annual report shall include an assessment of the previous year of data collection and comparison to final effluent limitations, a report on progress made towards meeting the final limitations and milestones targeted for the upcoming year. The Annual Report of Progress shall be submitted with the January DMR.

VI. THREATENED AND ENDANGERED SPECIES PROTECTION

See Part 0, Introduction, VI. Threatened and Endangered Species.

As part of the NPDES process and in conjunction with the Endangered Species Act on industrial-type facilities that discharge to waters of the United States, it is highly probable that a biological evaluation may be required analyzing the effects of the industrial-type permit on listed species. The evaluation may lead to consultation with USFWS under section 7 of the Endangered Species Act regarding the impact of the permit on the listed species. The USFWS may subsequently issue a Biological Opinion on the effects of USEPA issuing the NPDES permits to the industrial-type permittee. The USFWS may identify "reasonable and prudent measures" that must be addressed by USEPA in order to minimize incidental take. Measures listed in the Incidental Take Statement are

"non-discretionary, and must be implemented by the USEPA so that they become binding conditions of any grant or permit issued to the permittee.

Because State of Idaho waters are involved in this permitting action, the provisions of Section 401 of the Clean Water Act apply. In accordance with 40 CFR §124.10(c)(1), public notice of the draft permit will be provided to the State of Idaho agencies having jurisdiction over fish, shellfish, and wildlife resources. As part of the certification, the State of Idaho will be asked to certify the mixing zone used in calculating the effluent limitations in the permit.

VII. IDENTIFICATION OF STAKEHOLDERS

There are currently no identified NPDES permitted industrial facilities in the Upper Snake Rock subbasin. A. E. Staley Manufacturing Co. of Murtaugh is identified in the Food Processors industry.

VIII. REASONABLE ASSURANCE

The USEPA currently retains "primacy" for the NPDES permits in Idaho. This implies that the USEPA is responsible for the permitting and enforcement of all NPDES permits in the state. Food processors are defined by federal statute as point sources and thus fall under the NPDES program.

The Idaho Department of Environmental Quality (IDEQ) is responsible for Clean Water Act §401 water quality certification of all NPDES permits in Idaho. This implies that in order to certify the NPDES permits for municipalities, the individual NPDES permit must meet and protect for Idaho water quality standards, which includes designated and existing beneficial uses.

As part of a Performance Partnership Agreement the USEPA and the IDEQ have agreed to conduct a certain number of inspections per year, as negotiated. The inspections are handled as "surprise" inspections and follow certain protocols as defined by the USEPA and the IDEQ.

Under the Upper Snake Rock TMDL and the Mid-Snake TMDL, a principal objective is to allocate allowable loads among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. Since both TMDLs reasonably assure that nonpoint source control measures will achieve expected load reductions, the appropriate control mechanism used for point sources is the NPDES permit.

Wasteload allocations for industrial-type facilities at the present time are zero discharge for all pollutants. Thus no discharge to any waterbody is permitted under the Upper Snake Rock TMDL.

A. IMPLEMENTATION EFFECTIVENESS MONITORING PLAN

As described in the Upper Snake Rock TMDL (p. 229), the reasonable assurance that industrial-type facilities will meet water quality standards is based on two monitoring components. First, the requirements for compliance monitoring as specifically defined in their NPDES permit. And, second, the use of the industrial NPDES monitoring data in the overall trend monitoring plan of the Upper Snake Rock subbasin. Monitoring provides the information needed to evaluate management actions. The generation of new data is a necessary requirement that will be used in the development of a wasteload allocation prior to Year 5 of the TMDL plan, and will be used in the overall assessment of the Middle Snake River and/or its 303(d) tributaries.

The Upper Snake Rock TMDL (§3.6.3 Trend Monitoring Plan) lays out the major objectives for usage of point source monitoring in conjunction with a trend monitoring plan. When and if industrial-type

facilities appear in the Upper Snake Rock subbasin, permitting requirements in their NPDES permit will be reconciled to combine with the trend monitoring plan.

For those facilities that do not discharge or which discharge to land application sites their monitoring requirements are none or as defined in their land application permit, respectively.

B. MAINTAINING MANAGEMENT ACTIONS OVER TIME

Maintaining management actions over time are identified as short-term and long-term goals in the Upper Snake Rock TMDL (§3.6.1, Table 114). Control actions and/or management actions as measures for industrial-type facilities are linked to their NPDES permits. Permit limits based on TMDLs are called water quality-based limits. As such the development of a wasteload allocation for industrial-type facilities establishes the level of effluent quality necessary to protect water quality in the receiving stream and ensure attainment of water quality standards. The permitting process is iterative in that each five (5) years the permit is reassessed and/or reissued. This process sets the short-term (five years) and long-term (10 year and 15 years) in place for when the NPDES permit will be re-evaluated according to the environmental concerns for the receiving waterbody. The Upper Snake Rock TMDL supports this approach and has developed its short-term and long-term goals around the five (5) year permit cycle.

All other industrial-type facilities that do not discharge or which discharge to land application sites will implement best management practices which protect for groundwater and surface waterbodies.

C. EVALUATION OF IMPLEMENTATION EFFECTIVENESS

As described previously, evaluation of implementation effectiveness will be governed through a monitoring program that involves NPDES compliance monitoring and an overall watershed trend monitoring plan. In addition, an annual progress report will be developed by the industry and submitted to IDEQ-TFRO.

IDEQ-TFRO will evaluate the implementation effectiveness of the industrial-type facilities based on the data provided through their compliance monitoring and the overall watershed trend monitoring plan. The Middle Snake Technical Advisory Committee will provide technical assistance to IDEQ-TFRO in its evaluation of implementation effectiveness. An annual report developed by IDEQ-TFRO will be presented to the Middle Snake Watershed Advisory Committee to receive their comments.

Part 6

Agriculture and Private Grazing Industries' Implementation Plan

PRELIMINARY

The agriculture and private grazing industries' implementation plan for the Upper Snake Rock TMDL was developed by the Idaho Soil Conservation Commission with direct assistance from the agriculture and grazing industries of the Upper Snake Rock subbasin. IDEQ-TFRO provided oversight and technical assistance through the entire development process of this implementation plan. The plan is based on the premise that it is an iterative document, and that any best management practices that are utilized will be utilized with adaptive management skills as defined in the Upper Snake Rock TMDL.

Because of the size and extent of the Upper Snake Rock subbasin, the plan brought together for the first time a number of soil conservation districts directly into the TMDL process for implementation. Cooperation from the Idaho Soil Conservation Commission through this process also brought the technical assistance of the USDA/NRCS group from Twin Falls and various soil conservation districts in the subbasin. Also are the efforts of the Twin Falls Canal Company, the North Side Canal Company, the U.S. Bureau of Reclamation, and the University of Idaho who provided technical assistance. Additionally, the efforts of various grazing associations in the subbasin are also recognized, as their involvement in this process was extremely critical.

Since this implementation plan is iterative, its development will evolve as the TMDL process evolves over the next 10-years on 303(d) streams in the Upper Snake Rock subbasin.

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INTRODUCTION

This document is a voluntary and proactive action plan developed by the agricultural related groups identified within the Upper Snake Rock subbasin. The implementation plan operates under the following scenario: (1) the plan is voluntary. (2) The plan's best management practices (BMPs) are economically feasible. (3) The plan must be flexible (through adaptive management) and allow for changes to be made to the BMPs when these are not functioning appropriately. And, (4) the BMPs must be applied on 303(d) streams utilizing the Idaho Agriculture Pollution Abatement Plan. No new existing authorities are mandated by the Upper Snake Rock TMDL. Rather, the TMDL works through existing authorities. These existing authorities include the Idaho Soil Conservation Commission (the designated agency) which prepares the implementation plan and the Idaho Agriculture Pollution Abatement Plan for authorized BMPs on 303(d) streams (Buhidar 2001). The implementation plan identifies various elements, actions, and efforts for the agriculture sector to achieve the goals and objectives of the TMDL. Actual implementation of the practices and actions are strictly voluntary for the individual landowners, operators, and agricultural related groups. Many stakeholders are already implementing BMPs on a voluntary proactive basis (Robison 2001). The implementation plan is by its very nature iterative, meaning that it is a living document allowing for appropriate changes to be made as adaptive management goals are implemented in achieving the goal of beneficial uses on 303(d) streams.

Surface water quality relating to effects from Confined Animal Feeding Operations (CAFOs) and Animal Feeding Operation (AFOs) is not addressed in this document. The CAFO industry is developing its own TMDL implementation plan. This plan also does not include the livestock feeding operations associated with grazing activities on irrigated pastures near 303(d) streams.

Many ag-related groups will provide assistance to the agriculture nonpoint source implementation plan (Appendix V). (Agriculture as referred to includes irrigated agriculture and grazing.) A cooperative working agreement between groups has been established. This agreement takes form in signed agreements, memorandums of agreement/understanding, and partnership plans. Individual groups will work independently of one another at times; other times they will work collectively. These groups have overlapping membership and can be categorized as the Irrigators' Water Quality Committee, the Idaho Conservation Partnership, the five Soil and Water Conservation Districts, the Idaho Soil Conservation Commission, and the grazing community.

A proactive approach to water quality improvement by the agricultural community can be verified by comparing current monitoring data with the base line of 1990-1991. This plan further identifies the water quality efforts and the accomplishments of these main groups.

Three main areas of grazing activities occur on private lands. These areas are near the Pioneer Reservoir, the southern regions of Cottonwood and McMullen Creeks, and the southern regions of Dry Creek. These rangeland and grazing areas are south of the Twin Falls High Line Canal on the south side of the Snake River or north of the North Side Canal Company system. Other small grazing operations occur within irrigated ag lands. The effects of these small operations are unknown and can be grouped with irrigated agriculture.

PRIOR PLAN

The irrigated ag community of the Upper-Snake has prepared an implementation plan through the Irrigators' Water Quality Committee for the first TMDL in the Mid-Snake region. This Phase 1 TMDL for Total Phosphorus was titled the "Middle Snake River Watershed Management Plan." Appendix A-5

of this document contains irrigated ag's implementation plan and is entitled "The Watershed Reduction Plan of the Irrigated Agricultural Industry for the Middle Snake River."

This is a very comprehensive plan. The goal of a sediment and phosphorus loading reduction by the year 2000 on 16 indicator drains (IDEQ Phase 1, page 66) has been met. This current TMDL establishes a sediment and phosphorus concentration for all agricultural waters returning to a 303(d)-stream segment.

The Irrigators' Water Quality Committee still believes that a watershed plan for water quality must be comprised of multiple components. The management actions defined in the first plan include construction of sediment ponds and wetlands on irrigation return flows, sponsoring water quality and technology research, and implementing water user (operator, canal company, and public) education on Best Management Practices (BMPs). This group continues to promote the implementation of these practices.

CANAL COMPANIES' WATER QUALITY EFFORTS

Improving water quality has been a goal for the two primary canal companies that discharge water into one of the 303(d) streams identified in the Upper-Snake Rock TMDL. The North Side Canal Company and Twin Falls Canal Company have both been involved in water quality programs long before the companies became members of the Irrigators' Water Quality Committee. Even before the Clean Water Act was enacted in 1972, the North Side Canal Company was digging sediment ponds to collect silt. A proactive approach to educate stockholders about irrigation practices that improve water quality is longstanding. This complements the structural changes the companies are making.

The three main areas of focus identified by the irrigated ag community in the first TMDL plan include education, monitoring, and constructing water quality facilities. Education is the key to improving water quality in the Upper-Snake River, but structural improvements to the canal systems can also help. Listed below is a brief overview of past and future efforts.

While the two companies collaborate on water quality efforts when possible, each system has its own unique traits and consequently, some tailored approaches to water quality. The water in both systems originates in the Snake River at the Milner Dam. Through a system of gravity canals, this water is supplied to fields for irrigation. Canals are dynamic systems that are constantly changing because of tail water flowing back into the canals from fields at varying amounts. Water being diverted from the canals also changes depending on farmers' daily demands. Managing a canal system to ensure the last point of diversion on a canal is supplied with a constant flow sometimes results in water needing to be bypassed. This water flows back into the Snake River at the end of the canals or through drains.

The service area of the North Side Canal Company (NSCC), which provides water to irrigate approximately 160,000 acres, is over 90 percent sprinkler irrigated. Sprinkler irrigation reduces the amount of runoff leaving fields and the amount of sediment and nutrients that can potentially reenter the Snake River system. Yet because of how the system was designed, the canals serve as virtual silt traps. To keep ahead of the silt buildup, NSCC operates three silt cleaning machines year-round, even running excavators during the irrigation season.

Point source discharge permits granted to the City of Jerome, other municipalities, and industries complicate the NSCC's water quality efforts. These NPDES permits allow the permit holders to discharge into North Side's canal system as a conveyance to the Snake River (USEPA NPDES permits for Jerome City and Jerome Cheese Company).

Different challenges face the Twin Falls Canal Company (TFCC) where approximately 80 percent of the 202,000-acre tract is surface-irrigated. The TFCC is cooperating with landowners and operators to install sprinkler systems. Approximately 4,000 acres, or 2% of the system is converted to sprinkler each year (Olmstead, 2001). The Twin Falls system is designed to use gravity to move water through hundreds of miles of canals and laterals. Irrigation water is reused several times within the system before entering the Snake River on the west end of the system. This reuse, however, allows the water to become more concentrated with particulate matter and nutrients through soil erosion that occurs during surface irrigation. The TFCC water quality efforts are complicated by point source discharges from municipalities and aquaculture and municipal storm water flowing into their canal or drainage system.

CANAL AUTOMATION

Both the North Side and Twin Falls canal companies are updating and automating their systems. Through a system of sensing devices, they can better manage canal water resulting in more efficient delivery of irrigation water throughout each tract. Both canal companies use automation to minimize the return flows from their systems.

The TFCC and NSCC have installed automatic and manual regulating gates within their systems. The TFCC and the NSCC have both completed major upgrades on the headworks on their main canals at Milner Dam. Some of the newly installed gates are automatically controlled. An ongoing project of updating the headgates and diversion structures within their systems is occurring.

MONITORING

The canal companies have continued with the monitoring efforts identified in the first plan. The purpose of a monitoring program is to first identify where the water quality problems are and then to verify that the corrective actions are working as designed.

North Side was the first canal company in Idaho to set up an in-house water quality testing laboratory. The Company began analyzing samples for total suspended sediment, total and ortho phosphorus, and nitrate and nitrite in June 1999. During the 2000 irrigation season, the 13 canal drains were monitored every two weeks. NSCC has hired a full-time water quality manager.

The TFCC also has employed a water quality manager, who works on-farm with irrigators. This one-on-one contact allows the Company to help find solutions for specific field problems and help stockholders comply with the water quality policy. They continue to contract with University of Idaho (U of I) specialists to assist in their water quality monitoring program. The U of I plans to monitor 10 canal drains for the TFCC during the 2001 irrigation season.

A reciprocity between the Bureau of Reclamation and the U of I has developed. Through this agreement, the U of I collects water samples for the Bureau and the Bureau then analyzes water samples for the U of I.

WATER QUALITY FACILITIES

Both canal companies are actively engaged in constructing and maintaining water quality facilities. Over the years the emphasis has shifted from just controlling sediment to reducing the amount of sediment, phosphorus and other pollutants in return flows. That shift has altered pond design from merely constructing sediment basins to large wetland projects. Phosphorus has been shown to be more difficult to remove than sediment. This problem identification has also altered pond design. Two

wetland demonstration and education facilities have been constructed. The Nature Conservancy (TNC) site was constructed on the North Side above the Thousand Springs area. This facility demonstrates how sediment and nutrients can effectively be removed through a system of deep and shallow ponds, and grassed waterways. The Cedar Draw Wetlands, built on the Snake River canyon floor, is a site where different varieties of plants are studied to compare the nutrient uptake of different plants.

TFCC has constructed and is maintaining 98 settling ponds (Table 9) near the ends of major drains and along the rim of the Snake River. The Company's goal is to work with farmers along each drain to use management practices that hold as much soil as possible on fields and then to construct a water quality facility on each drain as needed. Of the ten indicator drains identified in the first TMDL, five drains are presently meeting the 52 mg/l sediment goal and the remaining five drains have shown substantial reductions from the base line of 1990-1991 (Robison 2001).

A partnership between landowners and the TFCC provides for the construction of settling ponds. The landowner supplies the land and the canal company provides the equipment, supplies, and manpower to construct the facility. Some landowners receive half of the material removed during the cleaning process. The TFCC uses the remainder of the material to maintain the canal system and build roads.

NSCC operates 40 ponds near the canyon rim plus additional ponds throughout their system. They have water quality facilities on 11 of their 13 canal drains (Table 10). For year 2000, the average total suspended solids (TSS) concentration and total phosphorus (TP) concentration from the 13 canal drains was below the TMDL targets (Pennington 2001).

POLICIES

Stockholders of both canal companies have approved a water quality operation policy within their bylaws. Through progressive policies, both canal companies are encouraging landowner and operator participation in water quality. Although these policies do provide consequences for stockholders that fail to make improvements, stockholders in both companies are committed to a voluntary approach first. Long-running educational programs, by each company and in conjunction with local conservation districts as well as the Irrigators' Water Quality Committee, have laid the groundwork for future activities.

EDUCATION

Through the Irrigators' Water Quality Committee, the canal companies have worked to spread the water quality message through videos, demonstration projects, and a booth at the Twin Falls County Fair. Both companies are strong supporters of Water Awareness Week, which teaches sixth grade students about water resources.

The TFCC has made education a large component of its water quality program. A tailwater management plan and Imhoff cone program were developed to help irrigators manage and self-monitor their farm runoff. More information about these water quality educational programs and others is available on the TFCC web site <http://www.tfccanal.com>. Water quality education occurs at the TFCC annual meeting and is also included in their biannual newsletters.

Cooperative efforts with local conservation districts help spread the word about best management practices that improve water quality. Promoting the use of polyacrylamide (PAM), which can significantly reduce soil erosion on surface irrigated fields, is one example of these cooperative efforts. A one-day seminar (held in February 1997) on using PAM to control soil erosion in surface-

irrigated fields was followed by a series of PAM field days in 1998 and 1999, sponsored in conjunction with the Snake River and Balanced Rock Conservation Districts.

In July 2000, TFCC and the Snake River Soil and Water Conservation District sponsored a tour along the LS/LQ drain—a chronic problem area—to demonstrate polyacrylamide use along with tailwater management practices. Workshops aimed at Hispanic irrigators were held in March 2000. TFCC participated in a nutrient management workshop, sponsored by the Balanced Rock Soil Conservation District, for dairy operators and farmers who accept dairy manure.

Each year the Twin Falls Canal Company, along with the Balanced Rock and Snake River Conservation Districts, recognize farmers who are working to improve water quality by naming four stockholders as Outstanding Water Quality Irrigators. The Canal Company also recognizes individuals who were pioneers in cleaning up water by naming them to the Irrigators' Hall of Fame.

STOCKHOLDER ATTITUDE SURVEY RESULTS

Twin Falls - North Side Water User's Survey Summary, 1992 - 1997

A water user survey was taken in 1992, 1995 and 1997 to determine BMP usage and attitudes toward water quality issues. Surveys were sent to all shareholders of the two canal companies with 40 or more shares. The 40-share threshold was used to eliminate small hobby farms that are mostly pasture or grass and not representative of commercial farm production practices. About 2300 surveys were sent out with return rates of about 14% for 1992 and 1995, and 20% for 1997. Surveys returned accounted for over 20% of the irrigated acreage in 1992 and 1995 and over 25% in 1997.

Water quality improvement practices such as BMP usage, improved water management or conversion to sprinkler increased over the survey period. Farmer awareness of the water quality problem on the Mid-Snake was high, particularly in areas such as Rock Creek and West of Rock Creek where previous water quality projects had been conducted. A common attitude, particularly on the North Side was that farmers with sprinklers were already doing a very good job of water quality protection, and no additional actions were needed.

When asked if they would convert to sprinkler or adopt more BMP's if required to improved water quality, the results varied with location on the Twin Falls side. East of Rock Creek, the number that agreed or strongly agreed with the statement rose from 27% to 30 % to 40% from 1992-1997. The number strongly agreeing rose from 3% to 26% between 1992 and 1997. In the Rock Creek to Cedar Draw and West of Rock Creek areas, there was essentially no change in agreement with this statement between 1992 and 1997. This may be partly due to the fact that adequate power lines are generally available in the eastern part of the project but are not available in many parts of the central and western parts of the project. Other contributing factors may be crops grown and field size and shape.

Some general observations are:

1. There is a slight increase in agreement from 1992 to 1995 that the water quality problem on the mid-Snake does need to be addressed, although the level of agreement drops in 1997.
2. There is more agreement in 1995 and less in 1997 that drought is the primary reason for water quality problems of the last few years.

3. Fewer respondents agreed that the seriousness of the water quality problem has been exaggerated in 1995 (29%) relative to 1992 (32%), although the level of agreement increases again in 1997 (35%).
4. Agreement regarding the responsibility of irrigated agriculture for part of the water quality problem and for part of the solution increased from 1992 to 1995 and then decreased in 1997.
5. Attitude toward the cost of water quality improvement resting with the canal companies rather than the individual farmers has remained essentially constant from 1992-1997. Respondents did not agree with this statement and it had the highest level of strong disagreement of any question.
6. Agreement for the view that government funding should pay a major portion of expenses necessary for water quality improvement remained about constant from 1992-1997 with about 48% agreement and about 21% disagreement.
7. There was a slight increase in support from 1992 to 1995 for the idea that farmers should bear the majority of water quality improvement costs, with no change from 1995 to 1997.
8. In both 1995 and 1997, a lower percentage of respondents said equipment cost, extra time requirement, or lower crop yields were a major factor in not using conservation practices. Essentially, there was less of a negative perception of conservation tillage with time.
9. There was no change in the number of respondents that believed that additional conservation practices were not necessary. The majority believed that additional practices were required in all three surveys.
10. Support for the idea that additional cost share programs would be motivation to adopt additional conservation practices was stronger in 1992 and 1997 (51 and 53% agreement) than in 1995 (45% agreement).
11. In both 1995 and 1997, somewhat more respondents agreed that conversion to sprinkler was preferred to adopting more sediment control practices if water quality standards for irrigation return flows are established.
12. No major changes were seen in the preferred sources for irrigation management information.

OTHER CANAL DISTRICTS/ORGANIZATIONS

Several other canal districts/organizations deliver or control water within the Upper-Snake Rock TMDL Region. These groups have a relatively minor impact on the water quality of the Upper Snake Rock TMDL region.

GRAZING

Three main areas where grazing on private non-irrigated lands can be identified. These areas include lands near Pioneer Reservoir and Clover Creek, the southern regions of Cottonwood and McMullen Creeks, and the southern regions of Dry Creek. These rangeland and grazing areas are south of the High Line Canal on the south side of the Snake River or north of the North Side Canal Company system. Small grazing operations occur on irrigated agricultural lands. The effects of these small operations are minimal and can be grouped with irrigated agriculture.

The Idaho Cattle Association (ICA) signed a Memorandum of Understanding (MOU) with regulatory agencies. This MOU states "Direct animal contact with waters of the State by cattle confined in a Beef Cattle AFO will be considered, by ISDA, to be a discharge. This situation will result in an enforcement action, regardless of the size of the Beef Cattle AFO" (ICA). Feeding operations will not be allowed any discharging into any State waters, which also include affected 303(d) streams. This will aid in the ag plan implementation throughout the entire Upper Snake Rock TMDL region and is not limited to the three identified grazing areas.

Grazing occurs on Federal and State of Idaho lands more than on private grazing. The Idaho Department of Lands, the Forest Service, and the Bureau of Land Management have each presented their implementation plan for the Upper Snake Rock TMDL to IDEQ.

The land adjacent to Pioneer Reservoir is 70% BLM land, 20% private non-irrigated grazing land, and 10 % irrigated land as identified on graphical information system (GIS) coverages (Arc View). The land through which Clover Creek flows is 43% BLM, 43% private grazing, and 14% irrigated land.

The watershed of West Fork of Dry Creek is estimated to be 5% private non-irrigated grazing land, 33% BLM lands, and 62% Forest Service Lands. The lower portions of Dry Creek flows towards the Snake River through lands that are 10% private grazing and 90% irrigated lands.

The land encasing McMullen Creek above the TFCC High Line Canal is 8% private non-irrigated grazing land, 15 % irrigated land, 31% BLM, and 46% Forest Service. Land uses along Cottonwood Creek above the High Line Canal are estimated to be 10% BLM, 20 % private non-irrigated grazing, and 70% irrigated land.

As can be seen, small percentages of private grazing lands indicates that grazing on public lands has a greater influence on the three identified regions. Members of the grazing associations usually own the lands adjacent to the public lands. Expanding the existing management plans developed for the public land management agencies by the grazing associations should improve the water quality on the neighboring private lands. A list of grazing BMPs is included in Appendix IV. Additional BMPs are available through the Soil and Water Conservation Districts and the NRCS.

Grazers are taking advantage of cost-share opportunities to relocated corrals, fence riparian areas and install off-site livestock watering along Rock Creek. Ten applications for funding through the Upper Rock Creek High Priority EQIP Area—a federal cost-share program—were received during the 2001 signup period (Snyder 2001). One family operation with grazing activities on McMullen Creek, Cottonwood Creek, and Rock Creek has used EQIP money to continue fencing cattle out of the streams. The limiting factor controlling their efforts continues to be offstream watering for the cattle. When feeding their cattle during the wintertime, they distribute the hay as far as feasible from the stream. They winter some of their cattle along Rock Creek below the High Line Canal but do not have cattle in this region during the summer months. They also distribute salt blocks away from the creeks. This operation continues to restore the Rock Creek channel that has been enlarged by several High Line Canal breaks. One method being used is to place rocks in the channel below one of the large head cut sections. Some sediment is removed from Cottonwood Creek by an irrigation storage reservoir this family maintains on Cottonwood Creek approximately three miles upstream of the High Line Canal.

Another grazing operation on Cottonwood Creek is also fencing the cattle out of the creek. "Water gaps" or selected places where the cattle have access to the stream for water, are being installed. Rack crossings are being placed in the water gaps to strengthen the channel sides and bottom. The long-range plan for this operation is to completely fence one side of the stream and then only allow

cattle access to the stream for drinking water and not for crossing the stream. In the McMullen and Cottonwood Creek drainages several irrigation pivots have been installed in the last five years to control surface water runoff for irrigated cropland and pastureland.

A corral relocation project is being planned on McMullen Creek below the High Line Canal. This relocation project will also include fencing the creek. The fencing of the creek and removal of the corral will allow a riparian corridor to develop. Water quality of the stream will occur through the reduction of sediment and bacteria presently being delivered to the stream. Cost-share funding for this project will come from the Twin Falls Soil and Water Conservation District.

The Twin Falls Soil and Water Conservation District sponsored a water quality tour for the grazers in the Shoshone Basin in July 1998 (Snyder 2001). Members of the Western Stockgrowers Association, which runs cattle in both the Upper Rock Creek and Shoshone Creek watersheds, attended the tour. This tour focused on how streams were evaluated for inclusion on the state's 303(d) list. Grazers saw a demonstration of the state's Beneficial Use Reconnaissance Program (BURP) and the federal Proper Functioning Condition Evaluation. Other speakers outlined management practices grazers could begin to implement immediately to improve water quality. A follow-up tour is planned for July 2001 to show off relocation projects funded through cost-share programs and share water quality monitoring data that has been collected in the meantime.

IDAHO CONSERVATION PARTNERSHIP

The Idaho Conservation Partnership is comprised of federal, state, and local agencies. These agencies include the Natural Resource Conservation Service (NRCS), Idaho Department of Environmental Quality (IDEQ), Idaho Association of Soil Conservation Districts (IASCD), Idaho Soil Conservation Commission (ISCC), Idaho District Employees Association (IDEA), and the Idaho Department of Agriculture (IDA). The partnership has created a draft strategic plan (Appendix I). One of the goals of the partnership is "By 2010, sedimentation will be reduced to meet pollution standards as specified in approved TMDL plans." This partnership will seek the staffing and funding to assist in completion of the AG implementation plan.

One of the agencies in the partnership is the Idaho Soil Conservation Commission (ISCC) (Web page-<http://www.scc.state.id.us>). The Commission is the land use agency responsible for the writing and implementation of a plan at the local level as defined in the 1991 Idaho Agricultural Pollution Abatement Plan. More information about this plan may be obtained from the Internet at <http://www.scc.state.id.us/plan.htm>.

The Abatement Plan contains a catalog of component practices for treatment of agricultural nonpoint source water quality pollution. Ten of most popular Best Management Practices (BMPs) are listed in Appendix III. These ten and the others listed in the Abatement Plan will serve as guidelines for the development of resource management plans necessary to meet the goals of ag implementation plan. Since BMPs serve as guidelines and not absolute programs, they usually follow three criteria: they are 1) voluntary, 2) economically feasible, and 3) flexible.

The Commission, with the University of Idaho and Idaho Department of Environmental Quality, published *Funding Sources* (University of Idaho 2000). This booklet identifies financial resources for projects relating to the TMDL Process and Idaho's water quality. A number of the cost-share programs are available including Environmental Quality Incentives Program (EQIP), Water Quality Program for Agriculture (WQPA) which replaces the State Agricultural Water Quality Program (SAWQP), Resource Conservation and Rangeland Development Program (RCRDP) Grants and Loans

(Appendix II), and 319 Grants. Funding for these programs is limited and funds are often allocated early in each fiscal year.

Through a cooperative agreement, the ISCC and the Idaho Association of Soil Conservation Districts (IASCD) have employed a water conservation analyst and a water quality resource conservationist in the Upper Snake Rock region to aid in the TMDL process. The analyst provides water monitoring assistance for the Soil and Water Conservation Districts. The conservationist aids the Districts in determining the TMDL workload and develops the framework for the agricultural portion of the TMDL implementation plans. More information about the IASCD may be obtained from the Internet at <http://www.scc.state.id.us/iascd/scd's.htm>

SOIL AND WATER CONSERVATION DISTRICTS

Five Soil and Water Conservation Districts are active participants in the implementation plan. These districts include Balanced Rock, Snake River, Twin Falls, North Side, and Gooding Districts. Each district oversees the projects within its boundaries. The districts have been actively involved in water quality since their inception and continue to be involved. Each district produces a Resource Conservation Plan that addresses the specific resource concerns that the district board determines to be of highest priority. A collection of recent success stories from the soil conservation districts was released. This collection of stories, *The Power of Three* (Idaho Conservation Partnership 2001), also describes conservation districts and their relationships with ISCC and NRCS.

These three groups (conservation districts, ISCC, and NRCS) have individually identified manpower needs relating to TMDLs. All districts in Division IV met in December 2000 and January 2001 to discuss the workload generated by and the staffing necessary to achieve the goals of the current TMDLs. The districts discussed the number of personnel necessary to accomplish the TMDL goals; whether the personnel would be hired by the districts, IASCD, or ISCC; and strategies to develop the funding for the extra personnel. Letters have been written to IASCD, ISCC, and some legislators addressing these issues. ISCC developed a TMDL technical assistance needs strategy in 1997 for the State of Idaho. They identified a need for nineteen water quality employees with six of these employees currently in place through a cooperation agreement with IASCD. The Commission has presented a budget request to the Idaho 2001 Legislature for additional technical people to aid in the development and competition of implementation plans. The NRCS Management Team from Division IV scheduled a February 2001 meeting to discuss the manpower requirements of NRCS as specifically related to the needs of the Districts.

The districts are non-regulatory subdivisions of state government. They provide cost-share programs to aid the agriculture community in developing water quality projects and programs on a voluntary basis. The districts prefer cost-share programs and education to ensure that the producer has buy-in with a BMP.

Current low farm commodity prices have made cost-share programs with farmers difficult to develop. For the latest WQPA signup, the Balanced Rock SCD did not have any cooperators volunteer when they offered a 35% cost-share. When the cost-share was raised to 50%, producers became willing to install BMPs. Future agricultural prices will determine the necessary cost-share to attract cooperators. This amount may even need to be increased to more than 50%.

GOODING SOIL CONSERVATION DISTRICT

The Gooding District's five-year resource conservation plan states that they will support TMDL processes during the eight year plan; however, agricultural water quality issues have been addressed by the District long before the TMDL phase had even been coined (Reedy 2001).

In 1994, the Gooding SCD initiated the construction of the first artificial wetland used for agricultural tail water cleanup in Idaho. Finding a site that met the requirements involved finding a landowner that would "give" the land to the pond system, help maintain the system, and allow tours and public display of the project, in addition, the land had to be situated on the end of a canal system. The Nature Conservancy was in the process of purchasing the Minnie Miller Island and adjacent property along the Snake River at that time; and the site, the landowner, and the project fit together like pieces of a fine puzzle. Technical assistance was provided by NRCS, developing five treatment stages within the system. These include a sediment basin, grass filter, shallow pond, deep pond and a final polishing filter. The individual components were monitored to provide information as to component contribution to the system as a whole. The North Side Canal Company (NSCC) provided construction.

Because of the success of the Nature Conservancy Constructed Wetland, the NSCC, which operates within the Gooding Soil Conservation District, has created other wetlands and ponds, all aimed at removing sediments and nutrients from their water before it re-enters the Snake River. One of the unplanned benefits of these systems has been the added value to the landowner from the aesthetic improvement to his property and educational benefits to elementary schools.

The Gooding SCD actively searches for conservation programs and funding sources to assist the cooperators in Gooding County. The State RCRDP loan and grant program has been used extensively in the Gooding District for many years, providing the water and soil savings benefits of switching from gravity irrigation to sprinkler irrigation systems. The efficiency inherent with the sprinklers allows elimination of most of the agricultural return flows to the conal system. This has greatly assisted the efforts of the NSCC in improving the water quality within the canal and the returns to the Snake River.

With the TMDL focus on the major return flows to the River, this report has identified numerous returning "drains" within Gooding County. These are typically larger canals or drains from the delivery area served by the NSCC. In the Hagerman Valley are numerous spring fed ditch irrigation systems, which are not included in the inventory. Examples of these are The Hagerman Water Users Association, Big Bend Ditch, Curan Ditch, Buckeye Ditch and Billingsley Creek to name a few. The Hagerman Valley extending along the River to Bliss contains diversified agriculture, wetlands, landuse and Aquaculture. In fact the stretch of River from clear lakes grade to Bliss in Gaading County is the home to the largest concentration of trout fish hatcheries in the nation.

North West of Bliss lies Clover Creek, which originates in Gooding County and returns to the River via Elmore County at King Hill. The upper watershed area of Clover Creek experienced a major fire in 1996 and spring floods in 1997. As one would expect the fire exposed the landscape to extensive erosion potential and the following wet spring and floods contributed to stream bank erosion and sedimentation to Clover Creek. Additional recent bank failures or canal discharges by landowners at the end of the NSCC system have contributed to the sedimentation. This sediment has been accumulating at an accelerated rate in Pioneer Reservoir and has greatly reduced the storage capacity and diminished available water to the users of reservoir. Clover Creek below the reservoir through Elmore County is experiencing streambank erosion and incisement.

The implementation efforts beyond the impact to the major canals will require in depth assessments, manitoring and further individual reviews.

The Gooding District is currently researching an Ag Drain Elimination Project (Appendix VII) on the North Side Canal W Drain near Hagerman. Through this project, a series of holding pond/wetlands area will be developed in the Malad Gorge State Park. This water would be piped over the canyon rim to the valley floor providing a gravity-pressurized system to existing sprinklers in place. The existing systems are presently using spring water out of Birch Creek. The objective of this project is to utilize irrigation return flows on the currently irrigated acres and will free up the clear spring water to flow directly into the Snake River. Key issues to be resolved are flow rates, water rights and funding.

In pursuing clean water in the Gooding District and in keeping with the district motto, "Educate-Don't Legislate" many programs are aimed at this goal, including Trees Against the Wind, Envirothon, Little City of Rocks Conservation Workshop, and a variety of tours, adult workshops, and displays. They presented a water quality theme for their booth at the 2000 Gooding County Fair. They were one of the first districts in the state to develop a web page. Their home page is located at www.id.nacdnet.org/gooding.

NORTH SIDE SOIL AND WATER CONSERVATION DISTRICT

The North Side SWCD has concluded that educating the youth of the future is the key to conservation. In 2000, the District has sponsored the following youth conservation contests and information and education programs (Hurd 2001):

- **Speech Contest**
The speech contest is open to all High School Students. The theme for this year's contest was *In the Children's Hands*.
- **Poster Contest**
The Poster Contest is held for all 4th grade students throughout Jerome County. The theme *In the Children's Hands* carried in to the poster contest also.
- **Natural Resources Workshop and Camp**
The North Side SWCD sponsored one student to the camp this year. The camp is open to youth 12-14 years old. It is a weeklong and focuses on wildlife, rangeland, forests, water, and soil.
- **Arbor Day Tree Presentations**
One of the favorite presentations done in the schools is the Arbor Day tree presentation to the third grade classes. The District, with the help of Operations Management International, gave away 318 Blue Spruce seedlings the week of Arbor Day (fourth Friday in April).
- **5th Grade Conservation Day**
The District puts on a full conservation day at Niagara Springs State Park every spring. The students rotate between 7 different stations learning about a wide variety of conservation issues presented by different organizations.
- **Envirothon**
Envirothon is a hands-on problem solving natural resources competition for students in grades 9 through 12. The District sponsored two teams from Jerome High School. One of the Teams won the State and National Envirothon and then placed 2nd at International Envirothon held in Nova Scotia, Canada in August 2000.
- **Secondary Teacher of the Year.**
The District's nominated teacher received the 2000 Secondary Teacher of the Year award, which was awarded at the National Association of Conservation Districts at their annual conference, held in Coeur d' Alene.
- **District Land Judging.**

Each year the University of Idaho Department of Agriculture and Extension Education holds a Regional Land Judging Contest in Jerome for High School FFA and 4-H students. Approximately 19 teams (200 students) participate each year. The District, along with NRCS chooses the land site, and assists with the soil testing preparation.

- Soil and Water Stewardship Observance Materials
The District continues to supply area churches with Soil and Water Stewardship Observance Materials.

The North Side District's five-year plan states that they will "support efforts of BAG and WAG." Although not explicitly stated, all of the District's soil and water conservation projects are directly related to the Upper Snake Rock TMDL.

Past and ongoing projects in this district include:

- 1985-1986 Vinyard Creek. In this project, 75% of the project acres will have been treated and should produce an 80% reduction in sediment in the Creek.
- 1982-1998 Hazelton Butte PL-566. 14,000 acres were included in this project generating a significantly reduced erosion and runoff in the project area.
- Scott's Pond NRCS PL566- Planning Project to investigate the existing and potential water quality problems and to create a plan to effectively treat these problems.
- July 1995 Scott's Pond NRCS PL-566 Grant. The District received a grant to implement the Scott's Pond State Water Quality Project. The District intends to spend over \$1,000,000.00 in the next five years, 2001-2006, in the southwest Jerome County for cost-share on BMPs. The cost-share money will enable producers to install conservation practices that should improve surface and ground water quality.
- Spring 2000. Sponsored a tour of the North Side Canal Compony's return flow sediment pond/wetland systems.
- Spring 2000. Presented an Agricultural Workshop for Ag producers to cover:
 - Composting research on potatoes and sweet corn for seed
 - Panel discussion on dairy issues
 - Available Government cost-share programs
 - Available Government farm loan programs
 - Water quality issues
- EQIP Education Grant- Installed a multi-row windbreak to demonstrate proper design and installation of windbreaks and to showcase some trees and shrubs that are suitable for windbreaks in Southern Idaho. After reviewing several sites, the District approached the Jerome County Historical Society for installation at the Idaho Farm and Ranch Museum.
- Spring 2000. Monastery of the Ascension Windbreak/Shelterbelt- In cooperation with NRCS, Department of Fish and Game and Pheasants Forever, the District established a 5 acre Windbreak/Shelterbelt to reduce erosion, protect growing crops, provide wildlife habitat, and improve aesthetics at the monastery and control odors from a nearby dairy.
- 2000. Jerome City Sewer Plant Poplar Tree Planting- As a member of the Mid-Snake Conservation and Development Council, the District is helping to sponsor a Hybrid Poplar waste water demonstration by applying treated municipal waste water through drip irrigation. About 1600 poplar trees will surround the Jerome Sewage Treatment Plant. The effluent now goes into the canal, eventually ending up in the Snake River.
- 2001 State WQPA Scott's Pond Grant.

BALANCED ROCK SOIL CONSERVATION DISTRICT

One of the State of Idaho's first water quality projects was developed within the Balanced Rock Soil Conservation District in the early 1980s (Snyder 2001). That project concentrated on management strategies for surface irrigated fields such as ponds or filter strips. Projects such as East Upper Deep Creek and West Upper Deep Creek have continued to provide cost-share assistance to farmers within the District that are interested in converting from surface to sprinkler irrigation. Fourteen projects totaling over \$350,000 in cost-share, were approved in the spring of 2001 under an extension of the West Upper Deep Creek Project. District supervisors would like to develop similar programs for other 303(d) stream segments within district boundaries, including Silo Creek and Mud Creek, but a lack of funding has slowed those efforts. The District recently defined a one-mile wide corridor on either side of a 303(d) stream as containing critical acres. Balanced Rock SCD has worked with the Twin Falls Canal Company on several educational efforts including polyacrylamide field days, the Outstanding Water Quality Irrigator Program and a workshop for Hispanic irrigators. Collaborative efforts are underway to construct new wetland facilities on chronic troublesome return drains on the west end of the TFCC tract. TFCC was invited to be part of a nutrient management seminar the District sponsored for dairy producers in August 2000. District-sponsored sprinkler irrigation workshops have provided information about the newest sprinkler irrigation technology and how to maintain a sprinkler system for maximum efficiency to cooperators.

Reducing irrigation-induced soil erosion remains a top priority for the Balanced Rock SCD. Many educational efforts are aimed at helping cooperators meet the sediment target set out in the Snake-Rock TMDL of 52 mg/L. In addition to sponsoring field days and identifying applicable cost-share programs, information is also provided through the District's quarterly newsletter (mailed to all postal patrons in Buhl, Castleford and west Filer) and through articles in local agricultural press.

Past and on-going projects for the Balanced Rock SCD include:

- Cedar Draw State Agricultural Water Project (SAWQP) — 1982
- East Upper Deep Creek — 1989
- West Upper Deep Creek SAWQP — 1993
- West Upper Deep Creek SAWQP Extension — 2000
- State Rangeland Conservation Resource Development Program (RCRDP) loans and applications — 17 in fiscal year 2000 (Appendix II).

SNAKE RIVER SOIL AND WATER CONSERVATION DISTRICT

The Snake River Soil and Water Conservation District follows the south side of the Snake River from the Cassia County line to Filer. Water quality has been a critical issue since the District was formed in 1966 (Snyder 2001). Snake River SWCD, along with the Twin Falls SWCD, participated in the national Rural Clean Water Program (RCWP) on Rock Creek in the early 1980s. Through the Rock Creek RCWP, district supervisors learned that the most effective practices for improving water quality must be cost-efficient and voluntary. District supervisors continue to put these lessons to work as educational programs are developed today to help cooperators reach the sediment loading target spelled out in the Snake-Rock TMDL:

- Collaborate with the Twin Falls Canal Company to host water quality field days.
- Continue to encourage the use of polyacrylamide and other management practices that reduce irrigation-induced soil erosion.
- Identify loan and grant programs that will help make conversion to sprinkler more affordable within priority areas.

In July 2000, the Snake River Soil and Water Conservation District and Twin Falls Canal Company sponsored a tour along the LS/LQ drain—a chronic problem area— to demonstrate polyacrylamide use along with tailwater management practices. The district also helped sponsor a workshop for Hispanic irrigators in March 2000. Information about irrigation management practices to improve water quality is included in the District's quarterly newsletter that is mailed to cooperators.

More than a decade after the Rock Creek RCWP ended, water quality within Rock Creek continues to be a concern. Changes in ownership along Rock Creek have prompted the District to look for ways to reach non-traditional, smaller acreage landowners. Fecal coliform has also emerged as an area of concern. To spread the word about management practices livestock producers and small acreage owners can do, the Snake River and Twin Falls SWCDs have sponsored workshops on fecal coliform and sponsored a booth at the Twin Falls Home and Garden Show. A monitoring program in 2000 helped identify problem areas within the watershed and the designation of Upper Rock Creek as a high priority area for the USDA's EQIP (Environmental Quality Incentive Program) helped bring additional cost-share dollars into the area.

Past and ongoing projects for the Snake River SWCD include:

- LQ Demonstration Project—1976-1980
- Rock Creek Rural Clean Water Project—1981-1992
- Perrine Coulee State Water Quality Project Planning Program—1994-1996
- Upper Rock Creek EQIP High Priority Area—2000-2005
- LS/LQ State water quality project—2000- Ongoing

TWIN FALLS SOIL AND WATER CONSERVATION DISTRICT

The Twin Falls Soil and Water Conservation District encompasses part of southern Twin Falls County. Much of the District is considered rangeland. The approximately 20,000 acres of cropland irrigated by the Salmon River Canal Company makes up the majority of the cropland in the District. Both water quantity and water quality are important issues for the seven-member District board (Snyder 2001).

Education has been an important focus of the District since it was formed in the early 1950s. That commitment is seen today through the District's continued sponsorship of the Envirothon team from Filer High School, the annual poster contest for 5th and 6th grad students and the annual speech contest for high school students. Twin Falls SWCD is also supporting natural resource education in the Filer High School by purchasing water quality monitoring equipment. Students will use that equipment to collect water samples from Cedar Draw to analyze in science class. That data will be analyzed in math class, and students will also design a webpage to share the data with interested individuals.

Twin Falls SWCD also produced two best management practice (BMP) brochures - one for grazing and one for irrigation - that are distributed to landowners and land operators.

Twin Falls SWCD has cooperated with the Snake River SWCD on collaborative projects such as the Rock Creek Rural Clean Water Project in the 1980s and the Upper Rock Creek EQIP High Priority Area in the 2000s. Changes in ownership along Rock Creek have prompted the District to look for ways to reach non-traditional smaller acreage landowners. Fecal coliform has also emerged as an area of concern. To spread the word about management practices livestock producers and small acreage owners can do, the Twin Falls and Snake River SWCDs have sponsored workshops on fecal coliform and sponsored a booth at the Twin Falls Home and Garden Show. A monitoring program in 2000 helped identify problem areas within the watershed and designation of Upper Rock Creek as a high priority

are for the USDA's EQIP (Environmental Quality Incentive Program) brought additional cost-share dollars into the area. Ten applications for cost-share assistance through the project were received in 2001 for structure improvement for grazing operations as well as sprinkler conversion.

PRIORITY AREAS

Priority areas are designated by the Conservation Districts in order to focus manpower and financial resources into a specific area. Each district establishes its own priority area and then competes with other districts for available funds. Priority areas are defined as watersheds, regions, or areas of special environmental sensitivity or having significant soil, water, or related natural resource concerns. Once the resource concerns are resolved in a priority area, a district can establish another or multiple priority areas in which to focus available resources. EQIP priority areas include Scott's Pond and Upper Rock Creek. The WQPA priority areas are Scott's Pond, LQ/LS, and West Upper Deep Creek. All the available state funds are allocated for fiscal year 2001. The districts will request additional funds in future fiscal years.

BMP TRACKING AND EFFECTIVENESS

The projects completed within a conservation district can be tracked on a web page that has been set up by the NRCS. The address is www.nrcs.usda.gov/prmsproducts. The types of information that are available for each district from this web site include:

- Acres of cropland that RMS* has been applied on
- Acres of Grazing that RMS has been applied on
- Acres of cropland protected from excessive erosion
- Acres that nutrient management has been applied
- Number of waste management systems planned or applied
- Volume of irrigation water reduced
- Acres of wetlands creation, restoration, or enhancement
- Acres of wildlife habitat management applied
- Acres of trees and shrub established

*RMS- Resource Management System is a system of conservation practices that adequately addresses five natural resources: soil, water, air, plants, and animals.

The ISCC is also developing a computerized BMP tracking system to monitor BMP installation and costs, and contracts that are developed. It will also house older SAWQP contracts as archives.

The TFCC publishes an annual water quality report based on the monitoring data produced by U of I Research Center in Kimberly.

ORGANIZATIONAL STRUCTURE

A large group of organizations has been identified to complete the TMDL Implementation Plan (Appendices V and VI). These groups will collaborate technical and administrative personal and identify funding sources. This large base of active participants will maintain the proactive approach already in place in the Upper-Snake Rock TMDL.

APPROACH

The first step in implementing a plan to build on the demonstrated progress for irrigated ag is to develop an up-to-date inventory and map of the canal drains in the Upper Snake-Rock region. A complete inventory will require a Global Positioning System (GPS) to determine the coordinates of each site. The inventory process will develop the flows and the concentrations of pollutants. This information will be obtained from the University of Idaho Research Center in Kimberly, Idaho; from the canal companies; IDEQ; EPA; BOR; and other agencies. The IDA, IASCD and ISCC will supplement any missing data. This data will be used to aid the soil conservation districts and canal companies in setting priorities for the drains on which to concentrate their resources. Permanent flow-measuring recorders will be installed on selected drains. The data collected with the recorder will be used as a management tool by the canal companies for controlling water at the ends of their systems.

After the inventory process is completed, BMPs can be identified, installed, and implemented to help reduce the flow and/or pollutant concentrations. Private grazing lands that have surface water flowing into a 303(d) stream will also be inventoried.

A complete inventory of the Upper Snake Rock watershed will be completed using the ISCC format (Appendix VIII). This Plan of Work (POW) will be a supplemental plan used by the Commission to continue the proactive approach developed before and during the TMDL process. Once completed, this POW will be used to complete the flow and/or pollutant reduction for all ag tailwater returning to a 303(d)-stream segment. The ISCC, NRCS, and all the districts believe that the long term solution to water quality improvement must be developed throughout the entire watershed. The National Resources Inventory (NRI) will be used to complete the land use inventory in the Upper Snake Rock watershed. A full description of the NRI is available from their web site at www.id.nrcs.usda.gov/nir/index.html.

The TFCC, through its water quality committee, developed a Tailwater Management Plan (Appendix IX) for its stockholders to use. A summary of this plan was mailed with the January 2001 newsletter. This will be another tool that can be used by landowners and operators to improve water quality by having them identify the tailwater exits from their farms and the BMPs used to manage their tailwater.

MONITORING

IDEQ has developed and arranged a 10-year trend monitoring plan on the Snake River in the Upper Snake-Rock TMDL region (Buhidar 2001). The TFCC has been monitoring the return flows to Snake River in this region through a contract with the University of Idaho Research Center in Kimberly Idaho (<http://www.kimberly.uidaho.edu/midsnake>). The NSCC is continuing with its in-house monitoring programs on its system.

The ISCC will use their tracking program in determining the cost and, therefore, the effectiveness of the BMPs installed. The ISCC will also continue its monitoring program through the districts. The districts are deciding on the tributaries they would like to develop monitoring programs on. The monitoring will be completed by the IASCD.

The WAG will continue to provide guidance into determining the monitoring sites that they feel are necessary in determining the progress of the TMDL implementation plan.

WATER QUALITY PRACTICES AND/OR PROGRAMS

The NRCS, ISCC, and districts believe that developing projects throughout the entire watershed is the best plan to eliminate pollution for the long term. Within the Upper Snake-Rock TMDL region

there are more than 100 return flow streams. This would require more than 100 watershed plans to be written which include a Resource Management System (RMS) to be developed on all the affected farms in each watershed. An approach that includes the objectives of eliminating the tailwater flow at the point where flow enters a 303(d) listed stream may be a viable option (Appendix V). The most cost-effective approach may be to define a one-mile wide corridor on either side of a 303(d) listed stream as containing critical acres and then concentrating all water quality efforts within this corridor.

Sprinkler irrigation generally causes very little soil erosion when compared to gravity irrigation. The landowners and operators on the TFCC system are converting 4,000 to 5,000 acres of gravity-irrigated land to sprinkler-irrigated land a year (Olmstead 2001). Sprinkler irrigation does contain its own issues. Energy costs and electric companies paying farmers to not operate their pumps are some of the main issues during the summer of 2001. There are other practices that may be most cost effective and also reduce soil erosion besides the conversion to sprinklers (Appendix III). A practice that is growing in use is the application of polyacrylamide. This product aids in the reduction of soil erosion associated with gravity irrigation.

The Northwest Irrigation and Soils Research Laboratory Agricultural Research Service (ARS) in Kimberly, Idaho, has provided technical assistance and direction to the irrigation community for water management and erosion control. Specifically, the mission of the Laboratory is to develop environmentally compatible and economically sustainable new and improved integrated water, soil, nutrient, and crop management practices for irrigated agriculture in the United States. Specific research thrusts develop crop and irrigation management practices that efficiently use soil and water resources while sustaining and/or improving water quality. These include ongoing studies to:

- manage water applications based on crop water requirements,
- reduce or control irrigation induced soil erosion,
- optimize nutrient applications for crop yield goals and protection of ground and surface water quality,
- determine relationships between soil nutrient availability and runoff or leaching concentrations, and
- identify movement of enteric organisms in irrigation runoff and surface drains.

Producers and irrigation companies can help achieve TMDL goals on 303(d) listed streams by implementing research results on cropping sequences and tillage practices; beneficial uses of crop residues, process wastes or irrigation water amendments (e.g., PAM, polyacrylamide); irrigation scheduling according to crop water use; and nutrient management relationships. Combinations of selected management practices for specific sites will have the greatest impact (Westerman).

The City of Twin Falls is working with a consulting firm to prepare a feasibility analysis for phosphorus trading in the Upper Snake-Rock region. Pollution trading with industry or a municipality may be an option to allow the canal companies to move loadings from one drain to another so that on a system wide basis the goals of the TMDL are met.

IDEQ has received funds from Idaho Power as a result of the relicensing of its dams. This money has been used to purchase approximately 20 acres on the LQ drainage where a large settling pond/wetland facility will be developed. Idaho Fish and Game will be recognized as the owner of the property. This drainage has been identified as a significant source of sediment and phosphorus to the Snake River.

The Bureau of Reclamation and the Army Corp of Engineers have also investigated projects that they can be involved with on other ag drains in this region. They visited these proposed water quality

facility sites in February 2001. Idaho Transportation Department (ITD) continues to look for sources of material for their road construction projects. Developing projects where ITD would dig large ponds remains another option for water quality. These ponds may be used as settling ponds and also as regulating ponds to aid the canal companies in managing the water flow at the ends of their systems.

GROUNDWATER

Groundwater has become a great concern in the Upper Snake Rock region, both in quality and quantity. Groundwater that emerges from seeps on the south side of the river and also from springs and seeps on the north side of the river comprise a large portion of the return flow to the Snake River. Percolation of water through the bottom of the canals and irrigation water applied in excess of the crop needs, provide aquifer recharge that supplies this seep and spring water. This recharge also supplies water for domestic wells in both shallow and deep aquifers. The conversion from gravity to sprinkler irrigation is believed to cause a reduction in the seep streams that flow from the south side of the Snake River. The seepage that flows into the tributaries and the Snake River is estimated by Cosgrove (1997) to be 640,000 acre-feet per year or a constant yearly flow of 883 cfs. This volume of water is half of the surface irrigation water diverted by the TFCC at Milner Dam. The irrigation surface return flows in the drains to the Snake River from the TFCC system was also estimated by Cosgrove to be 108,000 acre-feet per year or 149 cfs. David Carter, formerly with the ARS, completed a study in 1973 that showed that the flows from the seep tunnels and drains contained a total phosphorus (TP) concentration of approximately 0.03 mg/l. Rick Lentz, also with the ARS in Kimberly, verified this concentration again in 1999. This concentration is below the current TMDL phosphorus goal of 0.10 mg/l and also below the current averages in the Snake River. Therefore, this seep water, with its low concentration of phosphorus, aids in diluting the phosphorus concentration in the Snake River during the off irrigation season.

Spring water also emerges from the canyon wall on the north side of the Snake River. Approximately 5,000 cubic feet per second (cfs) of this spring water surfaces between Milner Dam and King Hill (IDWR 2001). This water from the North Snake Plain Aquifer provides recharge water to the river. The Snake River is almost completely diverted at Milner Dam for irrigation in the summer time but the river continues to increase in size as the springs enter the river downstream of Milner Dam. Agriculture is believed to directly impact this spring water through recharge and discharge of the aquifer. The NSCC loses more than 25% of its water to seepage through the canals (Pennington 2001). There are also deep wells through which water is lifted from the aquifer to provide irrigation water to the land above.

The Mid Snake Regional Water Resource Commission is a six-county organization that has been involved in groundwater issues since its inception in 1993. IDEQ Regional Office in Twin Falls has recently developed a groundwater organization focusing on Twin Falls County. Both of these groups utilize information contained in the *Idaho Ground Water Quality Plan*. There are also several entities investigating the use of artificial recharge to the aquifers in this region.

The Jerome County Commissioners hosted the Eastern Plain Watershed Summit in April 2000. The objects of the summit were:

1. To educate everyone on what is being done to protect the East Snake Plain Aquifer. Many agencies and entities are in the process of doing protection.
2. How can a coordinated teamwork effort work to enhance existing information, share information with each other to save time and money with limited budgets.
3. Is there a product for groundwater protection that can be produced for the Eastern Plain Aquifer that can be utilized by everyone?

Approximately 45 individuals participated in a round table discussion of the water quality projects they or their agency were working on.

OBSTACLES IN MEETING GOALS

The following are obstacles in meeting the goals of the TMDL:

- Unfamiliarity of TMDL implementation process requirements
- Low farm commodity prices make cost-share programs with farmers difficult to develop.
- Availability of cost-share dollars to help farmers adopt BMPs.
- Phosphorus is more difficult to remove from agricultural drains than sediment is. New technology as well as building larger water quality facilities is necessary.
- High cost and limited availability of land on which to build facilities.
- Unavailability of 3-Phase Power in Twin Falls County.
- High costs of electricity.
- Costs for periodic cleaning of almost 100 ponds by the TFCC require a dedicated machine and operator.
- Impacts of municipal storm water and point source discharges that are discharged into canal systems.
- Runoffs from paved and gravel roads entering Ag drains.
- Limited agency resources to identify projects, write plans, write grants, develop funding sources, and complete implementation of plans.
- Offstream watering facilities for animal grazing lands.
- The availability of experienced and qualified help for gravity irrigators is limited

COMPLIANCE

A proactive approach with regards to the implementation of water quality programs from the Ag community has been formulated and implemented. Best Management Practices are being installed and observed. Idaho Code states that if BMPs are being implemented and followed, that no actions will be taken against the Ag community.

IDAPA 58.01.02.350.01: Nonpoint sources are the result of activities essential to the economic and social welfare of the state. The real extent of most nonpoint source activities prevents the practical application of conventional tailwater treatment technologies. Nonpoint source pollution management, including best management practices, is a process for protecting the designated beneficial uses and ambient water quality. Best management practices should be designed, implemented, and maintained to provide full protection or maintenance of beneficial uses. Violations of water quality standards, which occur in spite of implementation of best management practices, will not be subject to enforcement action.

IDEQ affirms that the State of Idaho has developed a plan that gives EPA "Reasonable Assurance" that the goals of Idaho's TMDLs will be met. "Idaho has an EPA approved Nonpoint Source Management Plan which includes certification by the attorney general that adequate authorities exist to implement the plan" (IDEQ, Page 21). The Southern Idaho Regional Office of IDEQ affirms the approach taken in this implementation plan and that the goals are being looked at in a very proactive fashion (Buhidar 2001).

GOALS AND TIME LINES

Table 8 summarizes the goals and time lines of the agriculture and grazing industries in the Upper Snake Rock subbasin.

Table 8. Goals and time lines of the agriculture and grazing industries

| GOAL | DATE | METHOD |
|--|---------------|---|
| Phase 1 - 21% Reduction in Sediment for 16 Indicator Drains* | 2000 | Goal Has Been Met |
| Phase 1 - 10% Reduction in Phosphorus for 16 Indicator Drains* | 2000 | Goal Has Been Met |
| 60 % of NSCC Drains Meeting Sediment and Phosphorus Goals* | January 2006 | BMPs |
| 100 % of NSCC Drains Meeting Sediment and Phosphorus Goals* | January 2011 | BMPs |
| 60 % of TFCC Drains Meeting Sediment Goals* | Ongoing | BMPs |
| 100 % of TFCC Drains Meeting Sediment Goals* | Ongoing | BMPs |
| NSCC Elimination of all Drains | Ongoing | Canal Automation |
| Sediment Ponds on Ends of all TFCC Canals | Ongoing | Pond Construction |
| Bacteria Reduction on Rock Creek | Ongoing | BMPs |
| Grazing Efforts to Fence Stream Segments | Ongoing | BMP's |
| ISCC Inventory of all Canal Drains | December 2002 | |
| ISCC Completion of Plan of Work (POW) | December 2002 | |
| ISCC Prioritization of Canal Drains for Plan Implementation | December 2003 | |
| ISCC Inventory of all Grazing Lands Adjacent to a 303(d) Stream | December 2004 | |
| ISCC Inventory of Private Lands with Drains to a 303(d) Stream | December 2004 | |
| All Ag tailwater returning to a 303(d) Stream having a Sediment Concentration less than 52 mg/l. | January 2011 | Idaho Conservation Partnership Strategic Plan |

* On a system average

REFERENCES

References to this implementation plan have been moved to Part 11, References.

Table 9: TFCC Water Quality Facilities

| Owner/Operator | Year Built | Number of Ponds | Size (yd ³) | Size* Acres | Drainage |
|-----------------|------------|-----------------|-------------------------|-------------|--------------|
| B. Juker | 1998 | 3 | 3000 | 0.6 | Silo Cr. |
| Dickenson | 1998 | 2 | 1500 | 0.3 | Cedar Draw |
| Stuart | 1998 | 2 | 2100 | 0.4 | Deep Creek |
| Snidegar | 1998 | 7 | 2900 | 0.6 | Silo Creek |
| Van Winkle | 1996 | 1 | 1500 | 0.3 | Rock Creek |
| TFCC-Cedar Draw | 1995 | 12 | 3000 | 0.6 | Cedar Draw |
| Armitage | 1997 | 1 | 1000 | 0.2 | Silo Creek |
| Ihler | 1995 | 2 | 2000 | 0.4 | Pigeon Creek |
| Ellis | 1997 | 4 | 6000 | 1.2 | Mud Creek |
| Kuney | 1995 | 2 | 4000 | 0.8 | Mud Creek |
| Hoagland | 1998 | 2 | 4500 | 0.9 | Salmon Falls |
| McMaster-U of I | 2000 | 1 | 4000 | 0.8 | T.F. Coulee |
| Brennan | 1997 | 1 | 20000 | 4.0 | Pigeon Cove |
| R. Blass | 1997 | 1 | 1000 | 0.2 | 39A |
| McDonald | 1994 | 2 | 5000 | 1.0 | Silo Creek |
| T. Flemming | 2000 | 2 | 2000 | 0.4 | Cedar Draw |
| N. Coulee | 1996 | 1 | 2500 | 0.5 | Salmon Falls |
| W. Blass | 1998 | 2 | 2000 | 0.4 | Pigeon Cove |
| Robert Jones | 1998 | 3 | 3000 | 0.6 | Cedar Draw |
| Warnburg | 1996 | 2 | 2000 | 0.4 | I Coulee |
| T Coulee | 1996 | 1 | 1000 | 0.2 | Deep Creek |
| Collet | 1996 | 1 | 1000 | 0.2 | Deep Creek |
| Ramseyer | 2000 | 1 | 1500 | 0.3 | Pigeon Cove |
| Bloss | 1996 | 2 | 2000 | 0.4 | LS-2 |
| Cunningham | 2000 | 2 | 1000 | 0.2 | 39A |
| Holderreed | 2000 | 1 | 1000 | 0.2 | Deep Creek |
| Shriver | 2000 | 1 | 1000 | 0.2 | Cedar Draw |
| Rector | 1998 | 1 | 1000 | 0.2 | Deep Creek |
| Oregon Trail | 1993 | 1 | 2000 | 0.4 | Perrine |
| Ballard | 1993 | 1 | 500 | 0.1 | Perrine |
| Norris | 1993 | 2 | 3500 | 0.7 | E. Perrine |
| Summercamp | 1994 | 2 | 5000 | 1.0 | Perrine 2 |
| Keim | 1994 | 2 | 3500 | 0.7 | Perrine 3 |
| Kasel | 1999 | 2 | 200000 | 40 | E. Perrine |
| Brown | 1998 | 2 | 1500 | 0.3 | E. Perrine |
| CSI | 1993 | 2 | 4500 | 0.9 | Perrine |
| N. Pole Line | 1999 | 2 | 2000 | 0.4 | Perrine |
| Sharp | 1994 | 1 | 1000 | 0.2 | Rock Creek |
| P. Florence | 2000 | 2 | 2000 | 0.4 | Rock Creek |
| R. Pierce | 2000 | 2 | 1500 | 0.3 | Rock Creek |
| D. Moyle | 2000 | 1 | 2000 | 0.4 | Rock Creek |
| W. McCabe | 2000 | 3 | 1500 | 0.3 | Rock Creek |
| C. Coiner | 1997 | 2 | 2000 | 0.4 | T.F. Coulee |
| A 10 | 2000 | 1 | 2000 | 0.4 | A-10 Coulee |
| Borner | 2000 | 1 | 2000 | 0.4 | Mainline |

| | | | | | |
|-------------|------|----------|------|----------|------------|
| Holcomb | 2000 | 2 | 2000 | 0.4 | Lowline |
| Smutney | 1996 | 1 | 1000 | 0.2 | Rock Creek |
| W. Jones | 1995 | 1 | 3000 | 0.6 | Lowline |
| Doug Fisher | 2000 | 1 | 500 | 0.1 | Perrine 2 |
| C. Davis | 2000 | 1 | 3000 | 0.6 | Rock Creek |
| | | | | | |
| TOTALS | | 98 ponds | | 69 Acres | |

* Assume three-foot depth

Table 10: NSCC Monitoring Sites & Water Quality Facilities (at Canyon Rim)

| Owner/Operator/ Name of Site | Identified in Phase 1 | Number of Ponds | Size (acres) | Drainage |
|--|-----------------------|-----------------|--------------|----------|
| A Drains | Yes | 4 | 10 | A Drain |
| Lockwood | | 5 | 5 | C50 |
| C55 | Yes | 1 | 2 | C55 |
| Vinyard | | 5 | 7 | C33 |
| Jerome Golf Course | | 3 | 3 | K Drain |
| Standing Hat | Yes | 2 | 5 | N23 |
| J8 Ponds and Wetlands | Yes | 7 | 20 | J8 |
| S29-Not Monitored-Farmer Control | Yes | | | |
| S/S19-Monitored, Influenced by Jerome WWTP | Yes | | | |
| TNC Ponds, Wetlands, & Overflow | | 8 | 30 | W28 |
| Sandy | Yes | 5 | 40 | W26 |
| Z6 | | | * | Z6 |
| Z | | | ** | Z |
| Y8 | | | | Y8 |
| Y9 | | | | Y9 |
| | | | | |
| TOTALS | | 40 | 122 | |

* Excess water flows across waste land and percolates in
 ** Excess water irrigates land below canyon rim

Table 11: Activities on 303(d) Stream Segments

| 303(d) Streams | Boundaries | COMMENTS |
|----------------------|----------------------------------|--|
| Dry Creek, West Fork | Headwaters to Dry Creek | Forest Service Lands |
| Dry Creek | Headwaters to Medley Creek | BLM Lands |
| | Medley Creek to Snake River | Gravity Influence* |
| Vinyard Creek | Headwaters to Snake River | Very Clean- Need to Delist from 303(d) List |
| Alpheus Creek | Headwaters to Snake River | No Ag Influence, A/Q**, City of Twin Falls domestic water supply diversion |
| Rock Creek | Rock Creek (town) to Snake River | Snake River SWCD Priority Area, Gravity, 14 TFCC Ponds***, 7 A/Q, 2 hydropower facilities, 1 food processor, and 2 industrials |
| Ellison Creek | Headwaters to Snake River | Ground Water Impact , Need to Delist for 303(d) List |
| Crystal Springs | Headwaters to Snake River | 1 A/Q |
| Cedar Draw | Headwaters to Snake River | Gravity Influence, 20 TFCC Ponds, 7 A/Q, City of Filer wastewater, and 2 hydropower Facilities |
| Clear Springs | Headwaters to Snake River | 5 A/Q + 1 hydropower facility |
| Mud Creek | Low Line Canal to Snake River | Gravity, 6 TFCC Ponds, 8 A/Q, City of Buhl wastewater, and 2 hydropower facilities |
| Deep Creek | High Line Canal to Snake River | Balanced Rock SCD-Priority Area, Gravity, 7 TFCC Ponds, 6 A/Q, and 1 hydropower facility |
| McMullen Creek | Headwaters to Cottonwood Creek | Gravity Below Highline Canal, BLM and Forest Service runoff above, Corral Relocation Project |
| Cottonwood Creek | Headwaters to Rock Creek | Gravity Below and above Highline Canal, Some Salmon Falls Canal Co. Influence |
| Blind Canyon | Headwaters to Snake River | City of Jerome wastewater, 1 A/Q |
| Thousand Springs Cr. | Headwaters to Snake River | 1 A/Q and 1 hydropower facility |
| Riley Creek | Headwaters to Snake River | 2 A/Q |
| Billingsley Creek | Headwaters to Snake River | 8 A/Q , 2 hydropower facilities, Proposed State Park on Creek |
| Pioneer Reservoir | | Gravity and non-irrigated runoff and BLM Lands |
| Clover Creek | Pioneer Reservoir to Snake River | Gravity and non-irrigated runoff and BLM Lands |
| Snake River | | |
| | Milner Dam to Murtaugh | Gravity on both sides of Snake River |
| | Murtaugh to Twin Falls Reservoir | Gravity on both sides, City of Hansen wastewater |
| | Shoshone Falls Reservoir | No Ag influence |

| | | |
|--|---|--|
| | Shoshone Falls to Rock Creek | Gravity on South Side, 5 A/Q, City of Twin Falls wastewater, State of Idaho Lands, BLM Lands |
| | Rock Creek to Cedar Draw | Gravity on both sides |
| | Cedar Draw to Clear Lakes Bridge | Gravity on South Side, 8 A/Q |
| | Clear Lakes Bridge to Mud Creek | No Ag Influence, 2 A/Q |
| | Mud Creek to Deep Creek | Gravity on North side |
| | Upper Salmon Falls Reservoir | Gravity on both sides, 12 NSCC Ponds, City of Jerome wastewater, and City of Hagerman wastewater |
| | Lower Salmon Falls Reservoir | Gravity on North side, 2 NSCC Ponds, BLM Lands |
| | Lower Salmon Falls to Bliss Reservoir | Gravity on North Side, W Drain Project |
| | Bliss Reservoir-Bliss Bridge to King Hill Diversion | Gravity on South Side, BLM Lands |
| | Cassia Gulch to Big Pilgrim Gulch | Gravity on South Side |
| | Big Pilgrim Gulch to King Hill | Gravity on North Side |
| <p>* Gravity Influence = Irrigation runoff from private landowners, could be either gravity or sprinkler irrigated lands. ** A/Q = Aquaculture Facilities *** Ponds = Settling ponds or wetlands maintained by canal companies</p> | | |

Appendix I: Idaho Conservation Partnership Strategic Plan



Boise, ID 83709-1574

September 8, 2000

SUBJECT: Idaho Conservation Partnership Strategic Plan

TO: Soil & Water Conservation Districts, Idaho

On August 29-30, 2000, Natural Resources Conservation Service (NRCS), Idaho Association of Conservation Districts (IASCDC), Soil Conservation Commission (SCC), Idaho District Employees Association (IDEA), IASCDC Auxiliary, Idaho Department of Agriculture, and Idaho Department of Environmental Quality (DEQ) met to discuss and develop a strategy to address resource concerns in Idaho.

It is common knowledge that individually we do not have the people power to address all resource concerns. By combining our goals and making them common goals of the group, we will have a better opportunity to make a difference.

During our two-day session, we identified several critical natural resource issues in Idaho. As a group, we decided to concentrate on three major issues and two partnership issues. These issues were developed into "statements of intent":

Water Quality

Statement of Intent:

- By the year 2015, all 303 (d) listed water bodies will fully support beneficial uses.
 - By December 2007, TMDLs will be completed covering all 303 (d) listed water bodies.
 - By 2010, all 303 (d) listed water bodies will have completed watershed plans that are being actively implemented.

Land Protection—Quality and Quantity

Statement of Intent:

- By 2010, the erosion on all grazing land/cropland will be down to "T" or acceptable levels for land use criteria.

Sedimentation

Statement of Intent:

- By 2010, sedimentation will be reduced to meet pollution standards as specified in approved TMDL plans.
- By 2010, sedimentation control practices will be in place on all cropland.

The Natural Resources Conservation Service works hand-in-hand with the American people to conserve natural resources on private lands

THE USDA IS AN EQUAL OPPORTUNITY PROVIDER AND EMPLOYER

Idaho Conservation Partnership

Statement of Intent:

- o By 2010, conservation plans that address such issues as noxious and invasive plants, riparian vegetation health, endangered species, and fuel management in addition to plant composition and health will be implemented on all grazing land, cropland and forest land.

Idaho Conservation Partnership

Statements of Intent:

- o By 2002, the Idaho Conservation Partnership will be working together, supporting each other, understanding the roles of each organization, and using programs that best serve the natural resource needs.
- o By 2001, the Idaho Conservation Partnership will act seamlessly to meet the statements of intent for water quality, land protection and sedimentation management.
- o By 2002, the Idaho Conservation Partnership will be recognized statewide for their expertise and accomplishment in addressing natural resource and environmental issues.
- o By December 2002, the Idaho Conservation Partnership will be recognized publicly and politically as the most reliable and respected organization to deal with natural resource and environmental issues.

As you can see, these statements of intent are very aggressive. But we need to be aggressive in order to help people resolve their resource concerns on private property.

We now have a rough draft of a strategic plan which contains common goals. We will be developing an action plan for specific items to be addressed over the next 12 to 24 months. With the group's concurrence, I volunteered to write you this letter to request that you take a look at your long range plan, business plan, or strategic plan and highlight one or two items you would like to see incorporated into our 12-24 month Conservation Partnership Action Plan. Please send the information to me by September 22, 2000. Our goal is to finalize our strategic plan by October-November 2000.



RICHARD SIMS
State Conservationist

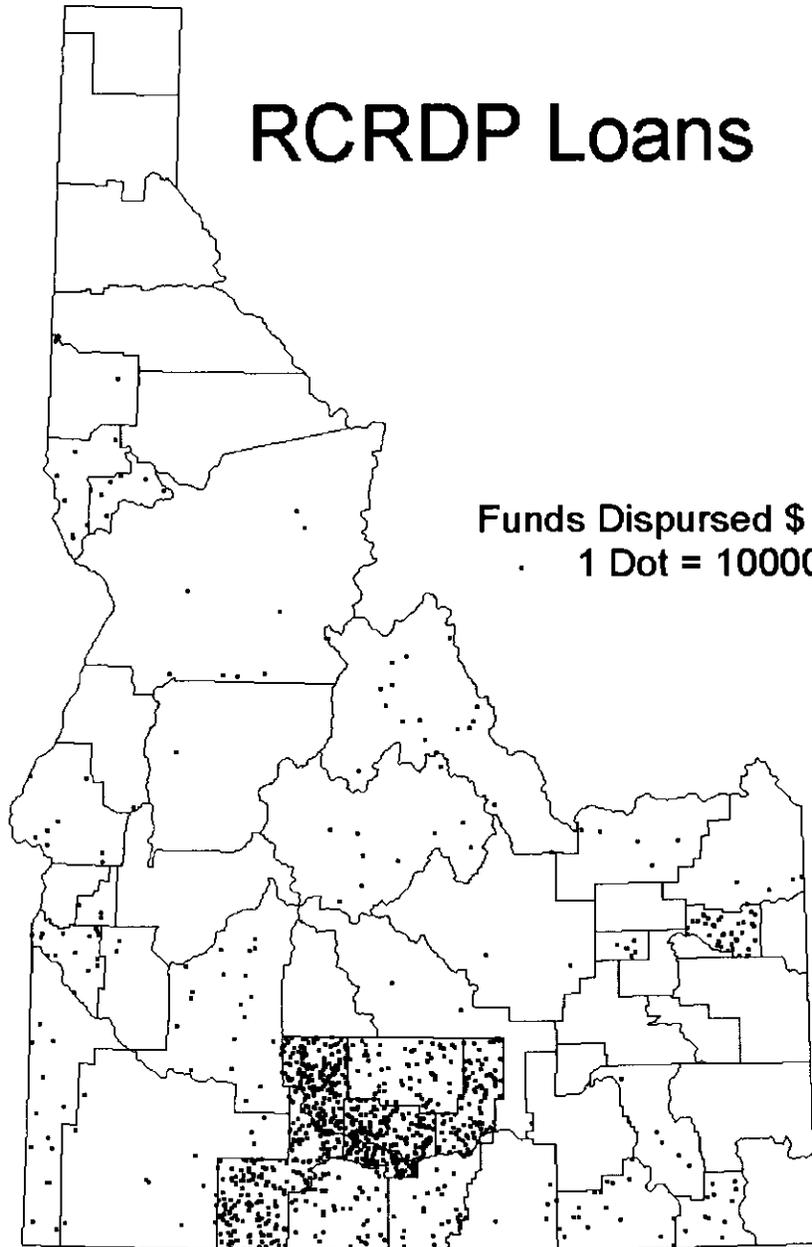
cc: Strategic Planning Session Participants

Note to Strategic Planning Session Participants:
(Individual letters were sent to each of those on the attached list.)

The Natural Resource Conservation Service works hand-in-hand with the American people to conserve natural resources on private lands

THE USDA IS AN EQUAL OPPORTUNITY PROVIDER AND EMPLOYER

**Appendix II: Resource Conservation and Rangeland Development Program
(RCRDP) Loan Accumulations**



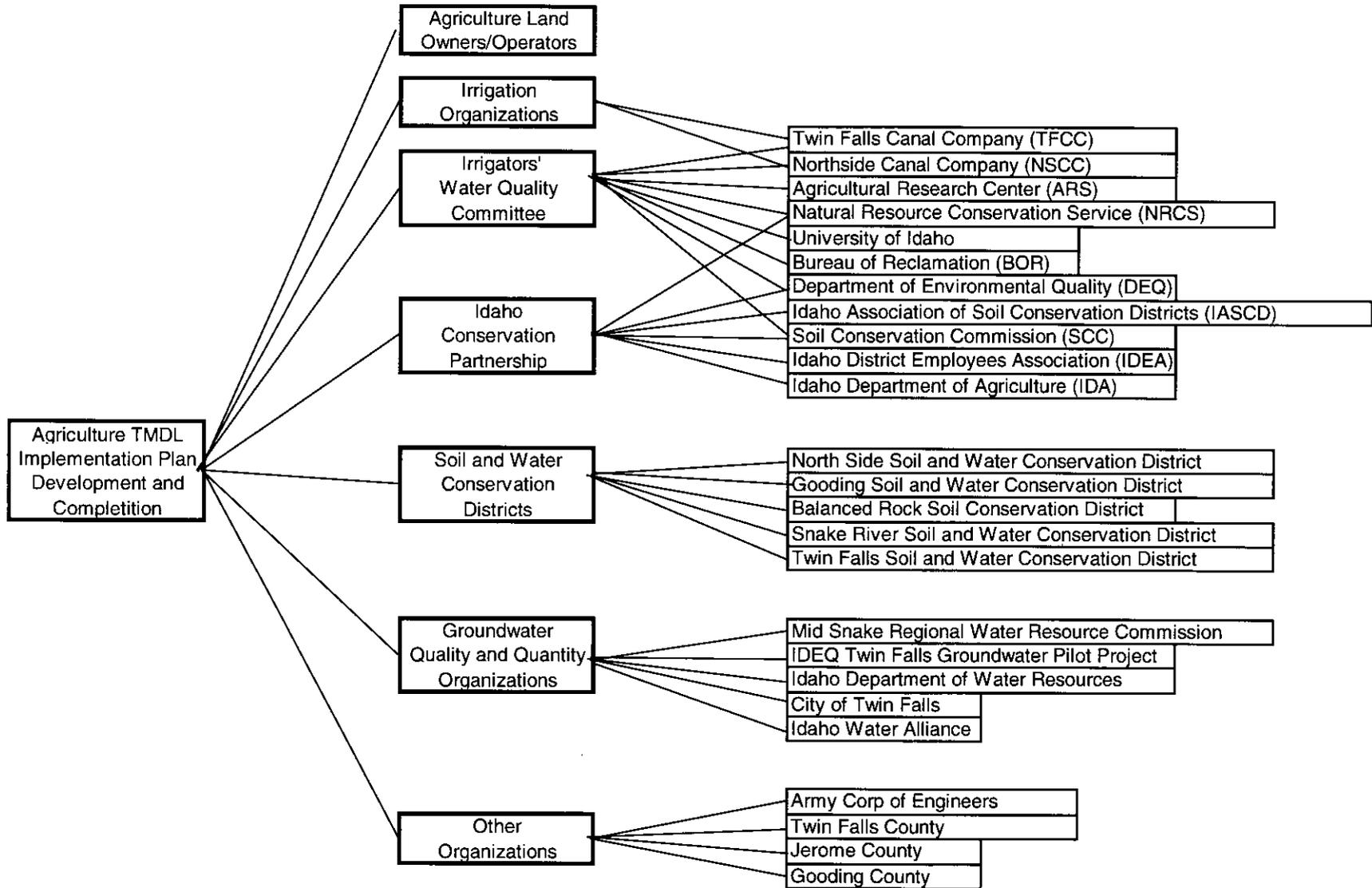
Appendix III: Irrigated Cropland BMP Component Practices

1. Filter Strip
2. Grade Stabilization Structure
3. Irrigation Pit, Regulating Reservoir, or Storage Reservoir
4. Irrigation System
5. Irrigation Water Management
6. Nutrient Management
7. Water Control Structure
8. Water and Sediment Control Basin
9. Wetland Development or Restoration
10. Application of polyacrylamide
11. Other BMP's are available in the Idaho Agriculture Pollution Abatement Plan or through NRCS Field and Office Technical Guides (FOTG).

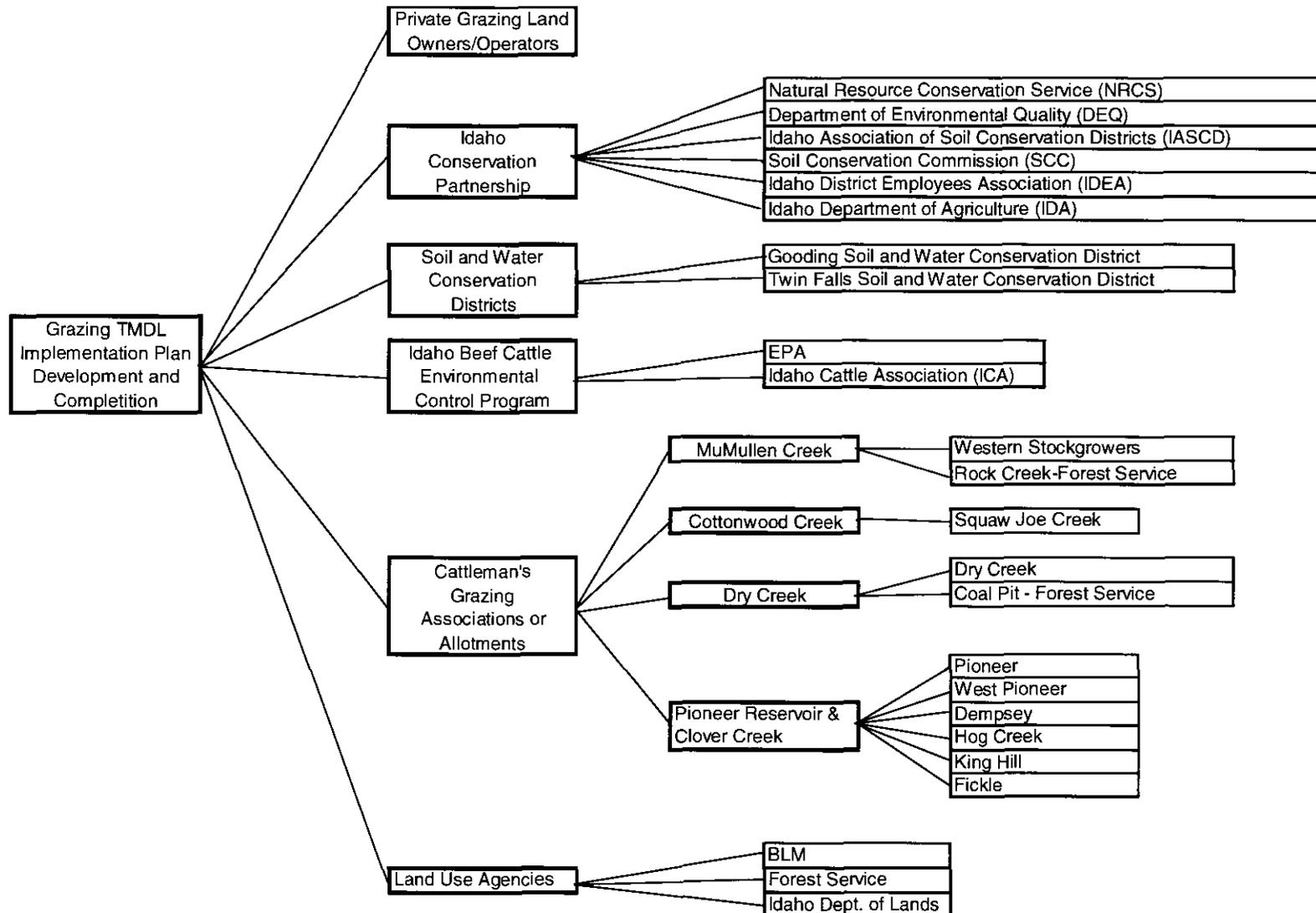
Appendix IV: Grazing BMPs

1. Brush Management
2. Critical Area Planting
3. Deferred Grazing
4. Fencing
5. Grade Stabilization Structure
6. Livestock Exclusion
7. Nutrient Management
8. Pasture and Hayland Management
9. Pasture and Hayland Planting
10. Pest Management
11. Pipeline
12. Planned Grazing System
13. Pond
14. Proper Grazing Use
15. Proper Woodland Grazing
16. Range Seeding
17. Spring Development
18. Stock Trails and Walkways
19. Trough or Tank
20. Well
21. Other BMP's are available in the Idaho Agriculture Pollution Abatement Plan or through NRCS Field and Office Technical Guides (FOTG).

Appendix V- Non-Point Source/Agricultural Organization Chart



Appendix VI: Grazing Organizational Chart



Appendix VII: AG Drain Elimination-AG Tailwater Reuse Program

It has been demonstrated that sediment can be reduced in the irrigation return flows entering the Snake River by using current Best Management Practices (BMPs), such as sprinkler systems, settling ponds, and wetlands. These water quality improvement facilities will also reduce phosphate loadings and other nutrients because of nutrient attachment to sediment particles, but there could still be high bacterial levels. There will always be a pollutant of concern as long as irrigation water returns to the Snake River. Reusing the tailwater from ag lands is one means of reducing the pollutants flowing into the Snake River or one of its tributaries.

There are BMPs available such as tailrace pump back systems that could aid in the conceptualization phase of reuse process. This type of program would be a combination of existing programs/BMPs and new BMPs might need to be developed having a different focus.

This program could be a requirement listed on all present ag funding sources. One means for implementing this program is to place it on the rating scale. Funding for current ag proposals is based on a numerical rating system. Complete flow elimination from a stream that flows into a 303(d)-listed stream would receive points while a reduction of flow would receive a proportional rating.

An ag drain elimination program/system would address the watershed level elimination of agriculture drain flows to a natural water body or an injection well. Presently the TMDLs do not address flow.

This program is in direct reference to DEQ's request that the ISCC provide "Reasonable Assurance" that the AG goals of the TMDL will be met. Political funding is unpredictable as a long term funding source and therefore "Reasonable Assurance" cannot be guaranteed. An implementation plan can be developed using current funding but it is uncertain what results will be realized five years from now. It is possible that the goals of the TMDL may be only half met and political funding is no longer available? A practice approach of moving excess water from where it is undesirable to a place where it can be reused may be an option.

Components of the Proposed AG Drain Elimination Program

- A corridor, two-miles wide on each side of the Snake River, would be defined as containing the critical acres, where projects should be developed first.
- Pump back systems would be placed near the canyon rim and would pump water uphill to a lateral where the water could be reused in a downstream watershed. The pumping would prevent the water from flowing over the canyon rim. Installations would require a pumping station, pipe, and a pond at the lower end. Some systems may require lengthy runs of pipe to reach the desired lateral and may also require installation of power lines. The involved Canal Company may pay the O & M on the pumping station.
- Pump back systems would be located on the canyon rim to pump drainage water to irrigators who have deep wells instead of canal water shares. (This could be a larger scale version of the present FOTG# 447-Tailwater Recovery as a BMP from the Idaho AG Pollution Abatement Plan.) These installations would include a pumping station, pipe, and regulating ponds possibly at both ends. Once in place the operators would be responsible for the O & M. The operators would still retain use of existing wells and systems in place. Either the water permit on the existing well or the water permit on the pumped water would have a supplemental water right.

- Regulating ponds may also contribute water to the underlying aquifer through seepage. This concept could be integrated into the recharge programs that are being developed and implemented around the region. The recharge program coordinator for IDWR in Boise has expressed an interest in supporting efforts related to recharge.
- Building regulating ponds for landowner irrigation systems where the ponds are larger than the present four hour holding time requirement. Larger ponds will aid in canal system storage when the power goes off causing pumps to stop and the ponds will also aid in recharge.
- Placing a pumping station and pressure system upstream of an operator's or a group of operators' property and near the top end of a lateral/watershed. This could be a community system for both gravity and sprinkler irrigated lands. A consolidated, piped system would eliminate the need for excess surface water in order to provide the irrigation water for the last user.
- Installing pumps along a drain and connecting the outlet of the pump into an existing system. Ponds can be installed for regulating and additional water can be supplied by the existing water supply system whenever water in drain system is insufficient to supply irrigation needs of adjacent users.
- Not all drains can be eliminated because of seep/spring water, geology, or topography. Sediment ponds and/or wetlands can be developed on these drains that can not be eliminated and other drains could be diverted into these drains. Wetlands should be a last resort effort since they are a consumptive user of water. This area is a desert and needs water. Some wetlands have been designed to dispose water through percolation, evaporation, and evapotranspiration. Efforts should be made to transport this unwanted water to an area where it can be utilized.
- Installing large regulating ponds within canal systems to aid in reducing flow spikes. Some regulating ponds can be installed in pivot corners. Some operators/landowners have inquired into programs that will provide financial aid for installing permanent vegetation and/or wild life habitat on pivot corners. CRP land is another source of available land that can be used for water quality practices. There is a possibility of placing land in permanent CRP. Tax incentives to landowners who provide conservation easements are available through Land Trusts.
- Installing systems to pump drain water to dairies for use in flushing their alleyways and diluting waste in lagoons.
- Cooperating with Highway Districts in digging regulating/settling ponds as a source of fill material, i.e. pits dug for material for the new Filer-Twin Falls Highway.

Concerns:

- Right of ways-Conservation Easements
- Extra water returning to the canal system may cause capacity constraints
- When pumping back sediment who cleans the ponds?
- Ag drains are usually constructed in the natural drains, which collect runoff from other sources besides irrigation; i.e. spring runoff- rain on snow event and municipal storm drain water
- Storage or pump systems could capture accidental runoff from dairies and/or fields where manure has been applied
- Placing large sediment ponds near ends of drains, there is a chance of overflow
- Water rights

- Liability for open water: with regards to first order control of drowning
- Canal water is reused downstream several times by other users, but the tailwater near the canyon rim is usually not reused within the same system
- All systems utilizing waste or excess irrigation water are never considered permanent because upstream irrigation practices/management could alter the flow in the future. The ongoing automation by canal companies of their flow regulating systems will probably decrease the flows near the tail ends of the system.
- Incorporate injection well closure into this program.
- Some drains have power producing facilities installed that utilize the return flows.

Appendix VIII: ISCC Plan of Work (POW)

Table 12. ISCC Plan of Work

| ** | Planning Task | Outputs | Responsibility - Staff Days | | Start | End | Comments |
|-------------------|---|----------------------|-----------------------------|-------|-------|-----|----------|
| | I. ORGANIZATION | | | | | | |
| 1-2 1-4 | A. Establish technical advisory committee (TAC) to represent groups and agencies. | TAC information list | | | | | |
| | B. Establish citizen advisory committee (CAC) to represent individuals and communities. | CAC information list | | | | | |
| 4-6 | C. Review progress on plan of work tasks quarterly. | Progress memoranda | | | | | |
| | II. OBJECTIVES | | | | | | |
| 1-1 1-5 | A. Identify resource problems and S&WCD's concerns for study. | | | | | | |
| 1-5 2-1 2-2 | B. Define S&WCD's objectives and expected results (5 year plans). | Narrative | | | | | |
| 2-3 4-4 | C. Define issues affecting study objectives. | | | | | | |
| | III. PUBLIC PARTICIPATION 1-4, 3-4, 4-4, 5-4 | | | | | | |
| | A. Develop a public participation plan. | Plan Document | | | | | |
| | B. Establish and maintain project record file. | Record File | | | | | |
| | C. Complete a Civil Rights Impact Analysis. | Report | | | | | |
| | D. Scoping of concerns - all, TAC, CAC, etc. | Narrative/Table | | | | | |
| | IV. COMPILER PROJECT AREA GEOGRAPHY 1-3, 3-1, 3-3, 3-5 | | | | | | |
| | A. Political | (Maps are 11X14") | Narrative | Map | | | |
| | 1. Location | Narrative/Map | | Arnie | | | |
| | 2. Subwatersheds | Narrative/Map | | Arnie | | | |
| | 3. Land Cover/Use | Narrative/Map | | Arnie | | | |
| | 4. Land Ownership | Narrative/Map | | Arnie | | | |
| | B. Physical | | | | | | |
| | 1. Climate | Narrative | | | | | |
| | 2. Topography and Geography | Narrative/Map | | Arnie | | | |
| | 3. Geology | Narrative/Map | | Arnie | | | |

| | | | | | | |
|----|--|------------------|-----------------------------|-------|-----|----------|
| | 4. Hydrology | Narrative | | | | |
| | 5. Water Resources | Narrative | | | | |
| ** | Planning Task | Outputs | Responsibility - Staff Days | Start | End | Comments |
| | C. Historical | Narrative | | | | |
| | V. COMPILE RESOURCE INVENTORY DATA 1-2, 3-1, 3-3, 3-5. | | | | | |
| | A. ESA listings - plants and animals | Narrative | | | | |
| | B. Wetlands Inventory-FSA designation acres | Narrative/Tables | | | | |
| | C. Soils - unit descriptions/grouping map | Narrative/Map | | | | |
| | D. Riparian and aquatic zones: biological and physical inventories. | | Dave Ferguson | | | |
| | 1. Literature search for historic documentation of fisheries by watershed. | Narrative | | | | |
| | 2. Stream classifying by subwatershed | Narrative/Tables | | | | |
| | i. Rosgen method | | | | | |
| | ii. Riffle stability index | | | | | |
| | 3. Physical/habitat surveys by watershed | Narrative/Tables | | | | |
| | i. Stream assessment survey | | | | | |
| | ii. BURP | | | | | |
| | 4. Fisheries surveys: include spawning and stock assessments | Narrative/Tables | | | | |
| | 5. Water temperature data compilation | Narrative/Tables | | | | |
| | 6. Stream flow data compilation | Narrative/Tables | | | | |
| | E. Cultural resources inventory/evaluation | Narrative | | | | |
| | F. Land use management | | John Kendrick | | | |
| | 1. Cropland treatment units (TUs) | Narrative/Map | " | | | |
| | i. Crop rotations and yields | | " | | | |
| | ii. NO ³ and PO ³ amts. - lbs/ton erosion | | " | | | |
| | iii. NP pollution effects (on/offsite) | | " | | | |
| | iv. TU descriptions | | " | | | |
| | 2. Rangeland, Pastureland, and Hayland (TUs) | Narrative/Map | | | | |
| | i. Condition and productivity | | | | | |
| | ii. Current management | | | | | |
| | iii. NO ³ and PO ³ amts. - lbs/ton erosion | | | | | |
| | iv. NP pollution effects (on/offsite) | | | | | |
| | v. TU descriptions | | | | | |
| | 3. Forest lands treatment units (TUs) | Narrative/Map | | | | |
| ** | Planning Task | Outputs | Responsibility - | Start | End | Comments |

| | | Staff Days | | | | |
|--|--|------------------|------------------------------------|--------------|------------|-----------------|
| | i. Habitat types | | | | | |
| | ii. Species and condition of stands | | | | | |
| | iii. Potential production | | | | | |
| | iv. Current management | | | | | |
| | v. NP pollution effects (on/offsite) | | | | | |
| | vi. TU descriptions | | | | | |
| | 4. Roads-miles by road type | Narrative/Map | Arnie | | | |
| | 5. Mined lands and impact areas | Narrative/Map | Arnie | | | |
| | 6. Rural and urban development, zoning | Narrative/Map | Arnie | | | |
| | G. Treatment Unit maps | Maps | | | | |
| 3-3 | H. List of mandates that affect decision making | List | | | | |
| VI. ANALYSIS OF RESOURCE DATA 4-1, 4-2, 4-3 | | | | | | |
| | A. Literature search to compile sediment monitoring or production data by watershed. | Narrative/Tables | | | | |
| | B. Estimate erosion rates and sediment delivery rates (SDR) by TU and subwatershed | Narrative/Tables | | | | |
| | 1. Sheet and rill erosion rates & SDR | | | | | |
| | 2. Concentrated flow erosion & SDR | | | | | |
| | 3. Streambank erosion rates & SDR | | | | | |
| | 4. Erosion rates and SDR | | | | | |
| | 5. Resident sediment data compilation | | | | | |
| | C. Develop sediment budget & rating system | Narrative/Tables | | | | |
| | 1. By land use treatment unit | | | | | |
| | 2. By subwatershed | | | | | |
| | D. Identify critical stream reaches for fish | Narrative | | | | |
| | E. Correlate stream flow data with critical fish reaches data. | | | | | |
| | F. Correlate fish densities with habitat | | | | | |
| | G. Review BURP data - document beneficial uses supported by survey | Narrative/Tables | | | | |
| | H. Summarize non-BURP water quality data. | Narrative/Tables | | | | |
| | I. Model hydro. modification using SWORB | | | | | |
| | J. NEPA and ESA Documentation | | | | | |
| ** | Planning Task | Outputs | Responsibility - Staff Days | Start | End | Comments |
| | VII. INTERPRETATION AND EVALUATION 4-4, 4-5 | | | | | |

| | | | | | | |
|------------|--|--------------------------|------------------|-------|-----|----------|
| | A. Identify limiting factors to critical fish habitat | Narrative/Tables | | | | |
| | B. Identify causes and sources of pollutants | Narrative/Tables | | | | |
| | C. Rank or prioritize pollutants by subwatershed. Rank by degree of affect? | Narrative/Tables | | | | |
| | D. Evaluate changes in problem identification between Task II B. and Task VI. | Narrative | | | | |
| 4-6 | E. Modify or revise problems as needed. | | | | | |
| | F. Design system to prioritize subwatersheds for fisheries enhancement and restoration work. Apply system Upper Snake River Basin | Narrative | | | | |
| | G. Design system to prioritize projects in subwatersheds for fisheries enhancement and restoration work. Apply system to watersheds. | Narrative | | | | |
| | H. Determine reference conditions for Upper Snake River Basin. | Narrative/Tables Maps | | | | |
| | VIII. FORMULATE ALTERNATIVES 4-7, 5-1, 5-5 | | | | | |
| | A. Forecasted conditions | Narrative | | | | |
| 5-1 5-2 | B. Develop treatment strategies to enhance or restore fisheries habitat. | Narrative/Tables | | | | |
| | C. Compile BMP list by TU | Narrative/Tables | | | | |
| 5-3 | 1. Cost per BMP and per unit cost | | | | | |
| | 2. BMP effectiveness rating for flow, temperature, and sediment delivery. | | | | | |
| 6 | IX. EVALUATE ALTERNATIVES | Public Participation | | | | |
| | A. Relative to physical resources | | | | | |
| | B. Relative to social and economic issues | | | | | |
| | C. Express alternatives in monetary terms | | | | | |
| | D. Evaluate beneficial and adverse effects | | | | | |
| 5-5 | E. Display evaluation see FOTG V | Matrix | | | | |
| | | | | | | |
| | | | | | | |
| 6-6 | X. IDENTIFY POTENTIAL PROJECT FUNDING. | Narrative/Tables | | | | |
| | A. Create list and description of potential funding sources | | | | | |
| | Planning Task | Outputs | Responsibility - | Start | End | Comments |

| | | | Staff Days | | | |
|-----|---|--------------|------------|--|--|--|
| ** | XI. WRITE DRAFT REPORT | Draft Report | | | | |
| | A. Text, figures, graphs, tables | | | | | |
| | B. Finalize GIS figures and maps | | | | | |
| | XII. REVIEW DRAFT REPORT - 60 DAYS | | | | | |
| 5-5 | A. Appropriate agencies and TAC review | Comments | | | | |
| 6-5 | B. Public review and meetings | Comments | | | | |
| | XIII. REVISE AND SUBMIT FINAL REPORT | Final Report | | | | |
| | ** NRCS Planning Step Reference | | | | | |
| | All steps from NRCS represented in POW | | | | | |
| | ■ = Addition or modification 0/00/00 | | | | | |
| | ■ = Complete or draft ready | | | | | |

Appendix IX: Tailwater Management Plan

1. **Map** ~ Obtain at NRCS/ FSA Office (1441 Fillmore St., Twin Falls, ID)
 - Get one for each of your farms.
 2. **Determine** which field will have an erosion problem this year.
 3. **Identify** Tailwater Exits.
 - On your map identify sites where tailwater leaves your farms, or re-enters a TFCC waterway.
 4. **List BMP's** which will solve your individual problems.
 - (Include locations.)
 - Pam Applications _____
 - Filter Strips _____
 - Conservation Tillage _____
 - Sediment Ponds _____
 - Sprinkler Systems _____
 - Other _____
 5. **Implement BMP's**
 - Now is the time to get started!
 6. **Evaluate** your tailwater quality at each exit point.
 - Contact TFCC or NRCS for help with sampling.
- * This sample plan is a guideline for you to use. Refer to it frequently and record your progress on it.
7. **Map** ~ Obtain at NRCS/ FSA Office (1441 Fillmore St., Twin Falls, ID)
 - Get one for each of your farms.

Part 7

State and Public Lands Grazing Industry Implementation Plan

I. INTRODUCTION

The state and public lands grazing industry have certain responsibilities under implementation for both the Mid-Snake and the Upper Snake Rock TMDLs. These responsibilities are categorized in the following sections and are dependent on their existing authorities to regulate grazing on state and public lands.

State lands are owned by the State of Idaho and managed by the Idaho Department of Lands and the Idaho Board of Land Commissioners. Public lands are lands owned by the federal government (USBLM or USFS).

II. PUBLIC INVOLVEMENT

The state and public lands grazing industry will conduct its TMDL responsibilities in a cooperative manner with the IDEQ-TFRO and the Middle Snake Watershed Advisory Group:

1. The state and public lands grazing industry will continue to participate and provide technical assistance to the Middle Snake River Watershed Advisory Group on grazing issues.
2. The state and public lands grazing industry will continue to participate and provide technical assistance to the Middle Snake River TAC, and utilize the TAC as a scientific public forum on grazing issues.
3. The state and public lands grazing industry will continue to provide technical assistance to any professional industry in the Upper Snake Rock subbasin, particularly where concerns may exist on waterbodies that are water quality limited.

III. IMPLEMENTATION TIMELINE

IDAHO DEPARTMENT OF LANDS

The implementation timeline for the Idaho Department of Lands grazing plans on State Owned Endowment Lands portion of the drainages in the Upper Snake Rock subbasin is similar to the other nonpoint source implementation timeline: five (5) years to get to the target reductions; and, an additional five (5) years to maintain target reductions.

PUBLIC LANDS

The implementation timeline for the federal lands (USBLM and USFS) grazing plans on public lands is similar to the other nonpoint source implementation timeline: five (5) years to get to the target reductions; and, an additional five (5) years to maintain target reductions.

IV. PROPOSED MANAGEMENT ACTIONS AND LINKAGE TO BENEFICIAL USES

IDAHO DEPARTMENT OF LANDS

It is the responsibility of the Idaho Department of Lands as an Idaho land management agency through implementation of the Clean Water Act (via IDAPA 58.01.02 and Idaho Code 39-3601 *et seq.*) to protect and restore the quality of state waters under the jurisdiction of their lands. Under IDAPA 58.01.02.350.03, approved best management plans are to be used to meet water quality standards (or water quality goals and objections) for streams that are under the TMDL process. The Idaho Department of Lands, the Board of Land Commissioners, has adopted the following approved best management practices for this purpose:

1. Idaho Forest Practices Act
2. Rules Governing Exploration and Surface Mining Operations in Idaho
3. Rules Governing Placer and Dredge Mining in Idaho

The Idaho Department of Lands grazing plans will address only the State Owned Endowment Lands portion of the drainages. The following are the parcels of state endowment lands located on streams of concern in the Upper Snake Rock watershed:

| <u>WATERBODY NAME</u> | <u>LEGAL DESCRIPTION</u> | <u>% of DRAINAGE</u> |
|--------------------------------------|--------------------------|----------------------|
| 1. Alpheus Creek (the Perrine Block) | S 27, T9S, R17E | 0.01 |
| 2. Cedar Draw | S 16, T13S, R14E | 0.09 |
| 3. Rock Creek | S 36, T12S, R18E | 0.02 |
| 4. Clover Creek | S 36, T4S, R12E | 0.01 |

The Lessees must submit management plans for approval by the Idaho Department of Lands. The management plans must address water quality concerns. The Idaho Department of Lands is the designated state agency responsible for administering the leases and management plans on state endowment lands.

Under the terms of the lease the lessees are responsible for meeting the conditions of the management plan. Therefore, the management changes required to comply with the management plan are the responsibility of the lessee.

PUBLIC LANDS

It is the responsibility of the USFS and the USBLM as federal management agencies through implementation of the Clean Water Act to protect and restore the quality of public waters under their jurisdiction. Protecting water quality is addressed in several sections of the Clean Water Act, including sections 303, 313, and 319. Best management practices are used to meet water quality standards (or water quality goals and objectives) under Section 319. IDEQ-TFRO will work collaboratively with the federal land management agencies and their permittees on all allotments that contain water quality limited waterbodies for attainment of beneficial uses and/or state water quality standards.

The USBLM-Burley Field Office has provided the following grazing use/riparian condition/and trend for selected 303(d) listed segments in the Upper Snake Rock subbasin:

1. Cottonwood Creek (2403)

The USBLM manages less than 1/8th mile of this segment. The area is grazed during the winter months. Riparian condition and trend information has not been gathered on this segment. The segment appears to be severely de-watered due to a reservoir and ditch above the segment. It is assumed that livestock grazing on public lands has little, if any, effect on the water quality problems in this segment.

2. McMullen Creek

This USBLM segment is broken into seven polygons for the purpose of determining and monitoring riparian condition. All polygons are continuous except the lowest, which is bordered both upstream and downstream by private land. Three polygons were re-read (monitored) in 2000. Below they are listed from upstream to downstream:

| POLYGON | YEAR 1994 | | | YEAR 2000 | | |
|---------|-----------|------------|-------|-----------|------------|-------|
| | VEG. | SOIL/HYDRO | TOTAL | VEG. | SOIL/HYDRO | TOTAL |
| 9400309 | 62% | 56% | 58% | 95% | 83% | 88% |
| 9400310 | 81% | 50% | 61% | | | |
| 9400312 | 67% | 50% | 56% | 95% | 89% | 91% |
| 9400314 | 76% | 28% | 46% | | | |
| 9400318 | 81% | 44% | 58% | | | |
| 9400315 | 67% | 44% | 53% | 95% | 81% | 86% |
| 9400319 | 75% | 39% | 53% | | | |

< 60 Non-functional
 60 - 79 Functioning-at-risk
 >= 80 Proper functioning

The area is grazed from approximately April 26 to May 31 every year and this has been essentially the same since at least the late 1960s. Several springs have been developed and pipelines extended in an effort to draw cattle out of the creek bottoms (much of work was completed in the early 1990s). The 2000 scores indicate excellent riparian condition but the change since 1994 cannot be attributed solely to livestock grazing practices. Rather, the area burned in 1990 and was only partially reestablished by the time the area was looked at in 1994. All indications in the grazing file are that this area has been improving for a great many years. The resiliency (health) of this system can be seen in photographs from 1992 (shortly after the fire) and 2000. The largest shortfall affecting portions of the creek is the incisement, which has been present for many years and may be due to flood following fire, loss of beaver dams, landslides or a combination of these. The progress along this creek can be attributed mainly to the early season of use and off-site waters. Riparian area progress (seen through photographs and riparian condition write-ups) in Fifth Fork of Rock Creek and Dry Gulch, which are in the same allotment and receive the same livestock use as McMullen Creek, adds to the case that the riparian area along McMullen Creek is in an upward trend.

3. West Fork Dry Creek (2411)

This USBLM segment is intermittent. It flows every spring but dries up along most of its length during summer and fall. There are two polygons for the purpose of analyzing the riparian area. Data for these polygons has been read only once and by non-BLM personnel. See Dry Creek for additional information.

YEAR 1994

| <u>POLYGON</u> | <u>VEG.</u> | <u>SOIL/HYDRO</u> | <u>TOTAL</u> |
|----------------|-------------|-------------------|--------------|
| 9400481 | 67% | 44% | 53% |
| 9400516 | 63% | 61% | 62% |

4. Dry Creek (2408)

There are five polygons along this USBLM reach. They have been read only once in 1994 by non-BLM personnel.

| <u>POLYGON</u> | <u>YEAR 1994</u> | | |
|----------------|------------------|-------------------|--------------|
| | <u>VEG.</u> | <u>SOIL/HYDRO</u> | <u>TOTAL</u> |
| 9400524 | 75% | 39% | 53% |
| 9400526 | 71% | 39% | 52% |
| 9400082 | 79% | 67% | 72% |
| 9400145 | 83% | 56% | 67% |
| 9400231 | 67% | 67% | 67% |

Prior to 1991 all of the Dry Creek sections were grazed every year by cattle from approximately April 16th to either May 24th or 31st. Since 1991 these areas are grazed by cattle from approximately April 16th to May 22nd two years in a row and then rested two years in a row due in part to less than desirable riparian conditions. Some light trailing occurs in the fall. Two years on and two off appears to be resulting in positive riparian area change. The polygons have not been read since 1994 but several visits by USBLM personnel since that time have revealed excellent shrub regeneration and a closing-in of the shrub canopy. Positive change can be seen by looking at a variety of older photos and contrasting them with current on-the-ground conditions. The 1994 numbers no longer reflect current conditions.

The USFS Land and Resource Management Plan for the Sawtooth National Forest (USDA FS 1976 [p IV-67]) stipulates that water quality will be maintained or improved in accordance with State and Federal standards, including cooperation and coordination with State agencies on proposed projects. Best management practices, in conjunction with regional erosion prevention and control practices, will be used as a guide to prevent serious injury to designated and protected beneficial uses.

The USFS-Twin Falls Office has provided the following grazing use/riparian condition/and trend for selected 303(d) listed segments in the Upper Snake Rock subbasin:

1. McMullen Creek

2. Toolbox Creek

3. West Fork Dry Creek

V. COMPLIANCE ACTIONS

IDAHO DEPARTMENT OF LANDS

There are two mechanisms that IDEQ-TFRO will utilize as compliance actions (or implementation actions or plans) for grazing on state lands. The first is through the approved best management practices that are defined for this purpose to protect and restore the quality of state waters under their jurisdiction. The second is through the development and implementation of grazing management plan by the lessee and which the Idaho Department of Lands approves. The plans must address water quality concerns and how management actions will restore the waterbody to its beneficial uses and/or water quality standards. IDEQ-TFRO will work collaboratively with the state land management (grazing) agency and its lessees on all allotments that contain water quality limited waterbodies for attainment of beneficial uses and/or water quality standards.

The Resource Manager or Area Supervisor at South Central Area for Idaho Department of Lands will determine compliance with the management plan during inspections of the state endowment land parcel. If any unsatisfactory conditions are identified in either the regular inspections or the best management plan process they will be corrected using measures stipulated by the Idaho Department of Lands.

PUBLIC LANDS

There are two mechanisms that IDEQ-TFRO will utilize as compliance actions (or implementation actions or plans) for grazing on federal lands. The first is through the development and implementation of Water Quality Restoration Plans as defined in the 303(d) *PROTOCOL* of 1999 for specific waterbodies. The second is through the legally defined grazing allotment permit, and includes all management actions, decisions, environmental impact statements, reviews, etc. for a specific allotment that contains a water quality limited waterbody.

VI. THREATENED AND ENDANGERED SPECIES PROTECTION

IDAHO DEPARTMENT OF LANDS

Should a threatened or endangered species be found on State Endowment Owned Lands, the following addresses only the portion of the drainage owned by the State Endowment:

1. Threatened or endangered species have historically inhabited some endowment lands. The Endangered Species Act of 1973 (ESA) prohibits the "taking" of any threatened or endangered species by "any person subject to the jurisdiction of the United States ... within the United States". Therefore, any endowment land use activity, which would result in the "taking" of a threatened or endangered species would be prohibited under the ESA except an "incidental take". In the early 1980s Congress amended the ESA to allow "incidental taking" of threatened or endangered species, if the Secretary of the Interior gave permission. There are stringent procedural requirements that must be met before an incidental-taking permit will be granted.
2. If any endangered species are found, the Idaho Department of Lands will take necessary measures to protect the species and the lessee will be required to comply with the measures identified by the Idaho Department of Lands.

PUBLIC LANDS

Section 7 of the Endangered Species Act requires federal agencies to request a consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) regarding

potential effects an action may have on listed endangered species. As of 1997, the USFWS identified the following federally listed endangered and threatened species in the Middle Snake River area:

1. Endangered Species
 - a. Gray Wolf (*Canis lupis*) - experimental
 - b. Utah valvata snail (*Valvata utahensis*)
 - c. Snake River physa snail (*Physa natricina*)
 - d. Banbury Springs limpet (*Lanx sp.*)
 - e. Idaho spring snail (*Pyrgulopsis idahoensis*)
2. Threatened Species
 - a. Bald eagle (*Haliaeetus leucocephalus*)
 - b. Bliss Rapids snail (*Taylorconcha serpenticola*)
 - c. Ute ladies' tresses (*Spiranthes diluvialis*)

In addition to these species, the USFWS has listed several species of concern: kit fox (*Vulpes velox*), white sturgeon (*Acipenser transmontanus*), Shoshone sculpin (*Cottus greenei*), California floater (*Anodonta californiensis*), and Columbia pebblesnail (*Fluminicola columbiannus*).

VII. IDENTIFICATION OF STAKEHOLDERS

State of Idaho lands is under the statutory control of the Idaho Department of Lands and the Idaho Board of Land Commissioners. Stakeholders of the State of Idaho lands include all permittees who are legally allowed to graze on allotments that encompass 303(d) streams.

Federal lands in Idaho are under the statutory control of the U.S. Department of Interior, Bureau of Land Management (or USBLM) and the U.S. Department of Agriculture, Forest Service (or USFS). Stakeholders of the federal lands include all permittees who are legally allowed to graze on allotments that encompass 303(d) streams.

VIII. REASONABLE ASSURANCE

Under the Upper Snake Rock TMDL and the Mid-Snake TMDL, a principal objective is to allocate allowable loads among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. Since both TMDLs reasonably assure that nonpoint source control measures will achieve expected load reductions, the appropriate control mechanism used for grazing on state and public lands is their grazing allotment permit and those best management practices or actions that the land management agencies have described in their management actions.

A. IMPLEMENTATION EFFECTIVENESS MONITORING PLAN

The Upper Snake Rock TMDL (§3.6.3 Trend Monitoring Plan) lays out the major objectives for usage of monitoring in conjunction with a trend monitoring plan. These objectives are as follows are found in Part 0, Introduction, VIII. Reasonable Assurance, A. Implementation Effectiveness Monitoring Plan.

IDEQ-TFRO will rely and utilize the existing authorities and the land management agency specialists to ascertain if implementation effectiveness is being accomplished. A monitoring plan will be developed by land management agencies that evaluate the effectiveness of management actions in 303(d) streams meeting beneficial uses and/or state water quality standards.

B. MAINTAINING MANAGEMENT ACTIONS OVER TIME

Maintaining management actions over time are identified as short-term and long-term goals in the Upper Snake Rock TMDL (§3.6.1, Table 114). For the time being, See section III for short-term and long-term goals.

C. EVALUATION OF IMPLEMENTATION EFFECTIVENESS

As part of the implementation process for all industries in the Upper Snake Rock subbasin, an annual report of progress will be submitted to IDEQ-TFRO to account for any and all activities that have been implemented on water quality limited waterbodies. This report will be prepared in a general annual report by IDEQ-TFRO and will be submitted to the public and the Middle Snake Watershed Advisory Group for comment.

IX. ADDITIONAL MANAGEMENT CONSIDERATIONS

The following information is provided by the Idaho Department of Lands on additional management considerations where 303(d) streams may be involved.

IDAHO DEPARTMENT OF LANDS

The Idaho Department of Lands has additional management considerations and existing authorities relative to water quality limited waterbodies that exceed the management actions on grazing but which may involve grazing parcels. These include the following:

1. Timber Management

Idaho Forest Practices Act, Title 38, Chapter 13, Idaho Code.
IDAPA 20.02.01 Rules pertaining to the Idaho Forest Practices Act.

2. Oil and Gas Exploration

Oil and Gas Operations, Title 47, Chapter 3, Idaho Code.
IDAPA 20.07.02 Conservation of Crude Oil and Natural Gas in the State of Idaho.

3. Dredge and Placer Mining

Idaho Dredge and Placer Mining Protection Act, Title 47, Chapter 13, Idaho Code.
IDAPA 20.03.01 Dredge and Placer Mining Operations in Idaho.
IDAPA 20.03.01.040. Best Management Practices and Reclamation for Placer and Dredge Mining Operations.

4. Surface Mining

Idaho Surface Mining Act, Title 47, Chapter 15, Idaho Code.
IDAPA 20.03.02 Rules Governing Exploration and Surface Mining in Idaho.
IDAPA 20.03.02.140. Best management practices and reclamation for surface mining operation. Introduction.

5. State Owned Public Trust Lakebeds and Riverbeds

The state owns the beds of navigable lakes and rivers within the State of Idaho under the equal footing doctrine. Easements, leases or permits are required to occupy on, under or above the State Owned Lakebed or Riverbed. The Idaho Board of Land Commissioners has the discretionary power to regulate and control the use or disposition of lands in the beds of navigable lakes, rivers and streams to the natural or ordinary high water mark, so as to provide for their commercial, navigational, recreational or other public use.

6. Riverbed Mineral Leasing

Leases of Navigable River Beds Authorized, Title 47, Chapter 714, Idaho Code.
IDAPA 20.03.05 Riverbed Mineral Leasing in Idaho.

7. Lake Protection Act

Navigable Encroachments, Title 58, Chapter 13, Idaho Code.
IDAPA 20.03.04 The Regulation of Beds, Waters and Airspace Over Navigable Lakes in the State of Idaho.

USBLM - IDEQ COOPERATIVE AGREEMENT

The IDEQ Cooperative Agreement (D91 0A30201) for fiscal year 2001 is an agreement signed between the IDEQ and USBLM for open pit mines, shafts, tunnels, adits, and abandoned mine lands in Idaho. Since many of these "mine sites" are abandoned, and since a great number are located in USBLM grazing areas, this cooperative agreement is placed in this section temporarily until such that USBLM feels that its location should be placed elsewhere or in its own part or section.

STATEMENT OF WORK

The Statement of Work includes all objectives listed under the Cooperative Agreement:

1. Continue assistance, advice and information exchange on hazardous material and other environmental matters of mutual interest to the BLM and DEQ.
2. Provide support that continues to allow BLM and DEQ timely participation and coordination in the assessment and management of hazardous materials issues that are of concern to the State of Idaho DEQ in the protection of the general public health and environment.
3. Allow DEQ to rapidly advise BLM on the consistency of the hazardous material program activities with current and proposed State and Federal regulations, laws, policies, and procedures regulated by DEQ.
4. Assist BLM offices in cooperating with State of Idaho Total Maximum Daily Load and Source Water Protection initiatives.

FY 2001 SPECIFIC TASKS

General tasks under the agreement are not specified here. These task descriptions are specific to FY 2001.

Task 1 - Support of Hazardous Materials Technical Response Team for AML projects

Task 2 - Support of Bridge Creek AML Project

Task 3 - Support of Princess Blue Ribbon AML Project

Task 4 - Support Upper Snake River District and Lower Snake River District in their planning efforts.

Task 5 - Support of Murtaugh Landfill monitoring

Task 6 - Support of AML and HazMat projects in the Coeur d'Alene basin.

TASK 1

Task 1 - Support of HazMat Technical Response Team (HTRT) for AML projects. The DEQ shall expand their support of the HTRT to include assistance on abandoned mine land projects and inspections.

TASK 2

Task 2 - Support of Bridge Creek AML Project. The BLM will provide the following

1. A restoration plan to remove mine waste rock from the flood plain and to increase the wetland and riparian habitat.
2. Coordination with Owyhee County and Idaho Fish and Game.

The DEQ will provide the following:

1. Consistency review of restoration plan with State of Idaho water quality standards, Clean Water Act, water quality program goals, and objectives including the Total Maximum Daily Load effort.
2. Technical review of implementation, restoration, and monitoring plans.
3. Coordination with State of Idaho abandoned mine land programs.
4. Assistance in acquiring State permits.

TASK 3

Task 3 - Support of Princess Blue Ribbon AML Project. The BLM will provide the following:

1. Changes to plan to provide for erosion control and restoration of riparian and wetland habitat.
2. Coordination with U.S. Forest Service, Camas County, Idaho Fish and Game, and others.
3. Quarterly reports containing photographs, written descriptions, and monitoring results where applicable.

The DEQ will provide the following:

1. Consistency review of restoration plan with State of Idaho water quality standards, Clean Water Act, water quality program goals, and objectives including the Total Maximum Daily Load effort.
2. Technical review of implementation, restoration, and monitoring plans.
3. Coordination with State of Idaho abandoned mine land programs.
4. Assistance in acquiring State permits.

TASK 4

Task 4 - Support Upper Snake River District and Lower Snake River District in their planning efforts. The BLM will provide the following:

1. Planning documents for comment and review.

The DEQ will provide the following:

1. Consistency review of restoration plan with State of Idaho water quality standards, Clean Water Act, water quality program goals, and objectives including the Total Maximum Daily Load and Source Water Protection effort.
2. Technical review of plans.

TASK 5

Task 5 - Support of Murtaugh Landfill Monitoring. The BLM will provide the following:

1. A contractor to provide site characterization of monitoring lysimeter locations, work plans, safety and health plans.
2. Final report containing photographs, written descriptions, and monitoring results where applicable.

The DEQ will provide the following:

1. Consistency oversight of State and applicable federal regulations during construction.
2. Review of monitoring and other work plans where necessary.

TASK 6

Task 6 - Support of Projects in the Coeur d'Alene River Basin. The BLM will provide the following:

1. An implementation plan to provide for removal of mine waste, treatment of adit water, erosion control and restoration of riparian and wetland habitat.

The DEQ will provide the following:

1. Consistency review of restoration plan with State of Idaho water quality standards, Clean Water Act, water quality program goals, and objectives including the Total Maximum Daily Load effort.

2. Technical review of implementation, restoration, and monitoring plans.
3. Coordination with State of Idaho abandoned mine land programs.
4. Assistance in acquiring State permits.

Part 8

Confined Animal Feeding Operations Industry's Implementation Plan

PRELIMINARY

This confined animal feeding operations (CAFO) or confined feeding operations (CFO) industry's implementation plan for the Upper Snake Rock TMDL was developed by the Nutrient Management Committee (Harry Hoagland, Lewis Eilers, Dean Falk) of the CFO/CAFO group for the Middle Snake Watershed Advisory Group. IDEQ-TFRO provided oversight and technical assistance through the entire development process as spearheaded by the Idaho Dairy Association and its members. This document was originally called the Proposed Watershed Reduction Plan for the Mid-Snake River Basin of the Confined Feeding Operations and is found as Appendix A-2 of the Mid-Snake TMDL. Additional information was added to this document by the Idaho Dairy Association in 2001 to produce the Confined Animal Feeding Operations Industry's Implementation Plan. This additional information as added as appendices as follows:

1. **Appendix A.**

Rules of the Department of Agriculture governing dairy waste. These rules govern the design, function and management practices of dairy waste systems. The rules were adopted on March 20, 1997 and amended on April 5, 2000.

2. **Appendix B.**

Natural Resources Conservation Service Conservation Practice Standard, Nutrient Management, Code 590, as of June 1999. It is intended that nutrient management plans developed from this standard be used to help producers improve or maintain their level of management and expertise as it relates to the application of nutrients on the lands they own and/or control.

3. **Appendix C.**

Odor Management Plan Guidelines. From the Technical Services section of the Idaho Department of Agriculture.

CONFINED FEEDING OPERATIONS WATERSHED MANAGEMENT PLAN

GOALS OF THE CFO WATERSHED MANAGEMENT PLAN COMMITTEE

1. Zero nutrient/sediment contribution to the Middle Snake River
2. Safely recycle nutrients through crop uptake to protect Idaho's water resources.

MANAGEMENT ACTIONS

1. Use Idaho Waste Management Guidelines for Confined Animal Feeding Operations for livestock waste system design, construction, operation, and management.
2. Industry adoption of BMPs as defined in CFO guidelines.
3. Promote innovative site-specific solutions.
4. Educate related industry to achieve sustainability through nutrient recycling.
5. General public education to foster understanding of the relationship of the livestock industry to crop farmers, food processors, water quality, etc.
6. Continue to solicit research funds focused on waste management technologies, strategies, fertilizer guides, computer applications, feeding programs, etc.

COMPLIANCE ACTIONS

1. Peer pressure is exerted by industry, by local and regional representatives, and neighboring facilities.
2. U.S. EPA NPDES Permit.
3. Industry support of EPA/DEQ enforcement of problem operations. The animal industry will cooperate closely with applicable regulatory agencies that have the authority and responsibility of enforcing and protecting water quality.
4. Develop Operation of Merit (environmental award).
5. Industry cooperation with canal companies.

IMPLEMENTATION EFFECTIVENESS

1. Monitoring NPDES permit violations.
2. BMP inventory and monitoring.
3. Annual Progress Reports.

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PROPOSED IMPLEMENTATION PLAN FOR MID-SNAKE RIVER SUBBASIN CONFINED ANIMAL FEEDING OPERATIONS

OVERVIEW

The animal agriculture industry's plan for the Middle Snake River Nutrient Management Plan is centered around the document *Idaho Waste Management Guidelines for Confined Feeding Operations* (CFO Guidelines). This document was revised in 1993. The original document was developed in 1987 to guide livestock owners in the construction and operation of Concentrated Animal Feeding Operations (CAFO) in Idaho with the goal of eliminating surface water contamination. Since its inception, this document has been widely used by new as well as existing CAFOs in the Magic Valley to design and operate waste management facilities. Portions have also been incorporated into local county planning and zoning ordinances dealing with livestock operations. The revision includes a title change to include all livestock operations as confined feeding operations (CFO) as compared to concentrated animal feeding operations (CAFO) which is used in the EPA permitting process. Thus, the document is now called *Idaho Waste Management Guidelines for Confined Feeding Operations*. The document has been distributed to every dairy operation in the state and has been widely distributed to the CFOs.

The current edition includes information for crop specific waste application rates. By matching liquid and solid waste application to crop needs, nutrients can be cycled back into animal feeds and other crops creating a closed and sustainable system. Education of farmers as to the value of animal waste can reduce the use of commercial chemical fertilizers. All this will further reduce the risk of surface and also ground water contamination.

Technical and editorial assistance was provided by a CFO Advisory Committee representing these agencies and organizations.

- Idaho Cattle Association
- United Dairymen of Idaho
- Idaho Department of Agriculture
- Idaho Department of Environmental Quality
- U.S Department of Agriculture, Soil Conservation Districts
- University of Idaho Cooperative Extension System
- Idaho Soil Conservation Commission
- Idaho Conservation League
- Idaho Association of Conservation Districts
- South Central District Health Department
- Hagerman Valley Citizens Alert
- Environmental Protection Agency
- The Public

ABSTRACT

Idaho Waste Management Guidelines for Confined Feeding Operations.

The purpose of this document is to help confined feeding operation managers and regulators understand

management practices and design criteria that prevent water pollution. Methods of managing animal waste on confined feeding operations (CFO) - dairies, feedlots, sheep, hogs, poultry and other animal-rearing facilities - directly affect the potential for pollution of Idaho's surface and ground waters. This information can be used to develop best management practices (BMP). These guidelines also are intended to assist managers in complying with state and federal water quality regulations and clarify governmental agency involvement.

This document is used by Idaho's Division of Environmental Quality for regulating confined feeding operations. It is also incorporated into local county planning and zoning regulations. In addition, the CFO guidelines are being considered as an integral component of the U.S. EPA NPDES permit and Idaho DEQ Plan and Specification review and approval process through Idaho Code 39-118. Information on water quality, existing regulations, site evaluation and planning considerations should improve evaluation of a confined feeding operation. It will also provide general direction for developing a waste management system best management practice to comply with legal requirements.

The intent of these guidelines is to show that waste and wastewater must be captured, and stored on-site for proper treatment, preferably through agronomic utilization back on the land. The basic methods to achieve a good waste management system are explained in the text. Minimizing wastewater volumes by conserving water and diverting surface runoff, is often overlooked as a means of reducing size of storage basins or preventing overflows in existing basins. This topic is covered in the document. Runoff control for the surface of the lot is discussed. Critical design criteria for waste collection and storage facilities is discussed. Estimating storage requirements in a step-by-step procedure is also addressed in the document. Practices that help control odors and other potential pollutants are described. Land application of animal waste may be a source of nonpoint source pollution, particularly ground water. Methods to prevent this through proper waste application are described.

THE ROLE OF NATURAL RESOURCE-BASED INDUSTRIES IN IDAHO'S ECONOMY

To explain the economic role of natural resource-based industries in Idaho, University of Idaho Ag Economists developed a computer model of the Idaho economy that uses value added as the key measure of an industry's economic output. The sum of all value added in Idaho equals the gross state product: the value of all goods and services produced in the state during a given year or roughly the state equivalent of gross national product. Idaho's gross state product in 1987, the year on which they based their economic model, was \$13.65 billion (U.S. Department of Commerce 1988. The last year reported was 1986. To arrive at the 1987 estimate, they extrapolated based on the 1986-87 change in Idaho employment).

The model takes into account the many interconnections that characterize the Idaho economy. The model identifies the value added of a particular industry such as agriculture and links to it the value added of all the industries and activities it supports.

Industry Contributions to Gross State Product

University of Idaho economic analysis indicates that agriculture is Idaho's leading natural resource-based industry, accounting for \$2.87 billion or 21 percent of Idaho's gross state product. Food processing ranks second, followed in order by timber, tourism, mining, and minerals processing (Table 13). Production agriculture and food processing combined account for over a third (35.9 percent) of Idaho's gross state product.

Table 13. Idaho gross state product linked to natural resource-based industries, 1987

| <i>RESOURCE-BASED INDUSTRY</i> | <i>MILLION (\$)</i> | <i>PERCENT (%)</i> |
|--------------------------------|---------------------|--------------------|
| Agriculture | 2,867 | 21.0 |
| Food Processing | 2,039 | 14.9 |
| Timber | 1,620 | 11.9 |
| Tourism | 459 | 3.4 |
| Mining | 297 | 2.2 |

The picture changes with geographic focus. Idaho is a geographically diverse state with several distinct and in many ways independent subregional economies: northern Idaho, southeastern Idaho, southcentral Idaho, and southwestern Idaho (Table 14). Timber dominated the economic landscape of northern Idaho, accounting for 44.5 percent of that region's gross product. Agriculture, meanwhile, is the dominant natural resource-based industry in the south.

Table 14. Gross regional product linked to natural resource-based industries, 1987.

| <i>INDUSTRY</i> | <i>IDAHO REGIONAL AREA</i> | | | | | | | |
|---------------------|----------------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| | <i>NORTHERN</i> | | <i>SOUTHWESTERN</i> | | <i>SOUTHCENTRAL</i> | | <i>SOUTHEASTERN</i> | |
| | <i>Million \$</i> | <i>Percent %</i> | <i>Million \$</i> | <i>Percent %</i> | <i>Million \$</i> | <i>Percent %</i> | <i>Million \$</i> | <i>Percent %</i> |
| Agriculture | 225 | 8.4 | 786 | 14.6 | 914 | 45.3 | 942 | 26.5 |
| Food Processing | 21 | 0.8 | 630 | 11.7 | 648 | 32.1 | 741 | 20.8 |
| Timber | 1,197 | 44.5 | 264 | 4.9 | 6 | 0.3 | 153 | 4.3 |
| Tourism | 180 | 6.7 | 129 | 2.4 | 59 | 2.9 | 91 | 2.6 |
| Mining | 127 | 4.7 | 42 | 0.8 | <1 | <0.1 | 128 | 3.6 |
| Minerals Processing | <1 | <0.1 | <1 | <0.1 | <1 | <0.1 | 254 | 7.1 |
| Other | 939 | 34.9 | 3,535 | 65.7 | 391 | 19.4 | 1,248 | 35.1 |
| TOTAL | 2,690 | 100.0 | 5,385 | 100.0 | 2,018 | 100.0 | 3,557 | 100.0 |

Agriculture is particularly important in southcentral Idaho where it accounts for more than 45 percent of that region's gross product. If we include southcentral Idaho food processors, whose location is dictated by proximity to inputs, the region's dependence on agriculture rises to 77.4 percent. In southwestern Idaho, agriculture accounts for 14.6 percent of the gross regional product. In southeastern Idaho, agriculture and food processing account for 26.5 percent and 20.8 percent of gross regional product, respectively.

Idaho's economy is acutely dependent on natural resource-based industries. Agriculture, food processing, timber, tourism, mining and minerals processing together account for well over half of the state's gross product. Even that figure is an underestimate because it does not include the federal government's resource-based links such as the timber, range, and recreation staffs of the U.S. Forest Service and Bureau of Land Management.

Because of Idaho's acute dependence on natural resource-based industries, its economy is more vulnerable than most states' to land and resource management decisions. Salmon recovery, water management, wilderness

designation, log exports, public grazing, and other issues have profound implications for Idaho's economic well being and development.

The Role of the Dairy Industry in Idaho's Economy

Idaho has more dairy cows than all but two western states, California and Washington. Income derived from milk cows has always played an important role in the State's agricultural economy. In the past sixty plus years, farm sales of milk and dairy products have increased twenty-five fold from \$12.8 million in 1924 to \$319 million in 1991. Milk cow numbers during the period rose to a high of 250,000 head in 1944, but has since declined to and estimated 185,000 as of January 1, 1993. The essential factor in increasing the high level of milk production in the State has been the steady gain in output per cow. From a low of 4,820 pounds per cow in 1924, the output has more than tripled to the record of 16,475 pounds in 1990. Output per cow declined slightly in 1991 to 16,399 pounds, but Idaho ranked eighth among the states in the Nation in productivity per cow. Cash receipts from milk accounted for 12 percent of all cash proceeds from farm marketing's in 1991 (Idaho Agricultural Statistics 1991). Milk receipts surpassed those of wheat in 1984, and milk presently ranks third in the state in terms of income received by farmers.

In the development of the dairy industry, Idaho producers have increasingly turned to markets outside the State. On the downside, Idaho producers have been at a price disadvantage because of extra transportation costs to markets outside the State. This has traditionally forced Idaho producers to accept lower prices to remain competitive. Transportation costs also limit the movement of whole milk. Thus, marketing has predominately occurred in the form of dairy products. In the early years, butter was the most important Idaho product shipped to distant markets. Peak output of this product occurred during World War II. Since then its production declined and American Cheese has become the major product. From 8.0 million pounds annually in the mid-1920s, production of American Cheese has expanded sixteen times to the record level of 128 million pounds. Idaho now ranks fourth among all states in the manufacture of American cheese. In 1987, 12 Idaho cheese plants employed 904 people and had \$384.1 million in shipments (U.S. Department of Commerce 1990).

Measuring the economic role of the dairy industry requires a model of the state's economy. In 1991 a team of economists in the University of Idaho's College of Agriculture completed the Idaho Economic Modeling Project (IDAEMP). IDAEMP tracks economic activity in the state, capturing interindustry trade, and shows how income creation in one industry is related to income creation in other industries.

A summary of their findings follows. When all supply and income multiplier effects are considered, dairy farming, cheese manufacturing, milk processing and other dairy product processing industries generated \$984 million, or 6 percent, of Idaho's gross income in 1989. The percentage is higher in the Magic Valley, however with 14.5% of the gross regional product linked to dairy.

WASTE MANAGEMENT GUIDELINES

Due to increasing development and use of land and water resources, responsible land stewardship is critical. Allowing any waste from confined feeding operations to enter streams, canals, rivers and lakes, or allowing wastes to reach ground water, is not only unacceptable but in most cases is illegal.

A practice that manages wastes on confinement areas and on cropland where wastes are fully utilized, thus maintaining surface and ground water quality is a best management practice (BMP). A BMP is the most effective way to prevent or reduce pollution generated from confined feeding operations. Because of unique site characteristics, water quality goals, practices and operations management, BMPs will be unique for each site.

The CFO guidelines were developed to help managers evaluate specific situations and understand practices needed to implement a BMP. The 1991 Idaho Agricultural Pollution Abatement Plan (Ag Plan) states, "Using the *Idaho Waste Management Guidelines for Confined Feeding Operations* with site-specific information will result in a Best Management Practice designed to meet water quality goals." The plan addresses Idaho's agricultural nonpoint source water quality concerns in response to the federal Clean Water Act. Conservation, environmental, and industry groups assisted technical agencies in development of these guidelines.

OBJECTIVES OF ANIMAL WASTE MANAGEMENT

The goal of CFO Watershed Management Plan is to safely recycle nutrients through crop uptake to protect Idaho's water resources. Land application to cropland or pasture is the best and most widely adopted technique to recycle nutrients from animal waste. The purpose of proper land application is to safely dispose of wastes to provide crop fertilization, improve or maintain soil structure, prevent erosion, reduce dependence on commercial fertilizers, and protect Idaho's water resources.

The primary objectives of animal waste management are:

- To collect and store all solid and liquid waste on-site in a manner that prevents wastes from entering surface water and seepage of nutrients into ground water.
- To manage both solid and liquid waste by proper land application for crop production and soil enhancement without excessively loading the soil profile which could result in ground water pollution.
- To control odors, flies, rodents and other vermin.
- To install a system that will solve present problem and prevent future animal waste problems economically.

PURPOSES OF GUIDELINES

The purposes of these guidelines are:

- To describe basic waste management practices.
- To educate owners and operators to effectively manage waste systems to protect Idaho's surface and ground water. If successful, there would be no need for additional regulations.
- To identify alternative practices that meet primary objectives of an animal waste management system that, when applied in combination, will result in a BMP.

Not all of these guidelines may be needed for a confined feeding operation, only those that are appropriate to the

particular site. Also, some practices may not be practical. Therefore, innovative, site-specific solutions to an animal waste management problem are encouraged.

WHO'S INVOLVED IN ANIMAL WASTE ISSUES?

Various Federal, State and local agencies ensure proper waste management of confined feeding operations. They are responsible for programs including the Idaho Agricultural Pollution Abatement Plan (Ag Plan).

Idaho Department of Environmental Quality (IDEQ)

The IDEQ is responsible for protecting surface and ground water quality in Idaho. It is concerned with wastes and other pollutants entering and adversely impacting state water quality. It will also provide information to confined feeding operation managers to assist them in proper waste management. The IDEQ is the primary regulatory and enforcement agency for Idaho environmental issues.

U.S. Environmental Protection Agency (USEPA)

The USEPA regulates discharge of pollutants to waters of the United States under authority of the Idaho General NPDES CAFO (National Pollutant Discharge Elimination System Concentrated Animal Feeding Operation) Permit. Discharge of pollutants to waters of the United States from CFOs, except as provided in the permit, is a violation of the Clean Water Act (CWA), subject to penalty. Proper management of wastes greatly reduces probability of discharge, and, therefore reduces possibility of penalty.

USDA Agencies

Soil Conservation Service (SCS): The SCS provides technical assistance to managers for developing BMPs and design of waste management facilities.

Agricultural Stabilization and Conservation Service (ASCS): The ASCS provides financial assistance to managers for constructing BMPs for waste management facilities.

Cooperative Extension System (CES): The CES provides educational programs in constructing, operating and maintaining confined feeding operations waste management systems.

Local Agencies

Soil Conservation District (SCD): The SCD is the local management agency responsible for agricultural nonpoint source pollution activities. It provides assistance to private landowners through design or adoption of BMPs and component practices to meet State Water Quality Standards and protect beneficial uses.

Irrigation Districts: Local irrigation districts are responsible for water conveyance for irrigation purposes. They are concerned with wastes and debris entering canal and drain systems and could assist animal agriculture with reporting of discharges.

County Planning & Zoning: Certain counties such as Jerome, Minidoka, Gooding and Twin Falls have local laws or regulations concerning confined feeding operations. Other counties may develop such regulations. Strict enforcement of permitted cow numbers will aid in waste management.

ANIMAL WASTE MANAGEMENT CONCERNS

January 1, 1993 estimates indicate there were 185,000 dairy cows located on approximately 1250 dairies in Idaho. It is further estimated there were 105,500 dairy cows located on 450 dairies in the Magic Valley. Dairy cattle produce an estimated 85 pounds of manure per day per 1,000 pounds of live weight. In one year, a 500-cow herd of 1,000-pound cows can produce about 850 tons of solids with 34 tons of nitrogen, six tons of phosphorous and 25 tons of potassium (USDA-SCS, 1975).

In 1989, there were 45 feedlots in Idaho with 617,000 head of cattle (Idaho Agricultural Statistics). Feedlot cattle produce an estimated 62 pounds of manure per day per 1,000 pounds of live weight. A 500-head lot can produce about 6,900 tons of manure per year with 810 tons of solids, 39 tons of nitrogen, eight tons of phosphorous and 21 tons of potassium (USDA-SCS, 1975).

In 1990, there were about 16,000 head of sheep and lambs, 62,000 hogs and pigs on feed, and a few large commercial poultry operations in Idaho. Approximate animal numbers for poultry and other animal-rearing operations are not known.

Animal waste contains elements that may impact surface and ground water quality. Nitrogen, phosphorus and potassium are nutrients of primary concern. Proper nutrient budgeting will not only allow manure to be spread correctly, it can reduce the need for application of commercial fertilizer. For example, it has been estimated the total nitrogen produced by the dairy cows in Jerome County would supply less than 60% of the nitrogen needs of the potato acreage in Jerome County. However, the livestock industry recognizes the concentration of animals in specific areas may require that manure nutrients be transported to applicable sites. The CFO guidelines illustrate BMPs such as composting that would enhance this aspect of livestock waste management.

ANIMAL WASTE NUTRIENT MANAGEMENT

Because of its nutrient value, manure should be considered a resource instead of a waste. The amount and kind of nutrient value in this "resource" depends on the animal, type of feed, method and length of storage, and method of application. Proper land application of manure will result in decomposition of organic matter into available elements essential to plant growth, notably nitrogen, and an improved crop yield. Decomposed organic matter also improves soil tilth, increases water-holding capacity, reduces wind and water erosion, improves aeration, and promotes growth of beneficial organisms. Depending on the water content of waste applied, it can also supplement irrigation. The nutrient content, while minimal in diluted wastes, can still be valuable. The value to crop production then includes both nutrient and water value.

Factors to consider in waste utilization are site evaluation, soil characteristics, timing of application, application rates, crop rotation, and available land for application. Tracking nutrient application may be necessary to protect ground water. Specific information relative to all these factors are addressed in detail in the CFO guidelines.

EDUCATION

Education is the key to participation in CFO Nutrient Management Plan. The CFO guidelines have been distributed to the following organizations.

- Idaho Cattle Association
- United Dairymen of Idaho
- Idaho Pork Producers Association
- Idaho Poultry Association
- Idaho Veterinary Medical Association
- Idaho Wool Growers Association

Examples of other agencies using the CFO guidelines include:

- Idaho Department of Agriculture
- University of Idaho Cooperative Extension System
- USDA - Soil Conservation Service
- Lending Agencies

United Dairymen of Idaho has distributed this document to every dairyman in Idaho.

Current and Future Activities

Idaho water quality standards are regulations of the Idaho Department of Health and Welfare, Division of Environmental Quality. General water quality standards state that as a result of man-caused point or nonpoint source discharge, waters of the state must not contain a) excess nutrients that impair designated or protected beneficial uses and, b) materials in concentrations that would result in an anaerobic water condition.

In 1987 the Environmental Protection Agency (EPA) issued a general permit to regulate discharges for confined feeding operations in Idaho under the Clean Water Act's (CWA) National Pollutant Discharge Elimination System (NPDES) permit program.

As a result of the EPA general permit, a planning grant was funded by USEPA. In addition to EPA, technical and editorial assistance was provided by a broad based advisory committee. This committee was instrumental in developing a workshop program for feedlot and dairy operators to introduce and discuss the concepts and practices presented in this report. Over the years, numerous educational programs have been presented to aid livestock operators in meeting the original intent of reducing surface water pollution. It is our opinion the effect was highly successful in this regard.

The 1993 revision of the *Idaho Waste Management Guidelines for Confined Feeding Operations* adds considerable material and especially strengthens the concept of maintaining surface and ground water quality through proper land treatment of animal waste. We feel that through continued educational efforts the success enjoyed with the original CAFO guidelines can be enhanced.

Confined feeding operations differ in many factors including specie, size, location and management. In addition, the waste management facilities and management also differ by operation. Because of this, educational programs are considered the best method to encourage CFOs to increase the use of best management practices (BMPs). This would include education of those involved directly in animal agriculture, crop farmers, contractors, lenders, processors and the general public. It is important to note that education is not new, but an ongoing program.

Confined Feeding Operation Education

The emphasis of education programs for CFOs will focus on the current water quality situation as it relates to animal agriculture and the impact of current rules, regulations and guidelines. The *Idaho Waste Management Guidelines for Confined Feeding Operations* has been addressed throughout this WMP. The goal of DEQ and the CFO industry is to have the guidelines used industry-wide.

Potential delivery methods include:

- University of Idaho newsletters, Current Information Series and Extension Bulletins. This material could discuss current projects/activities, system design, maintenance, operation, rules, regulations, nutrient budgeting, etc.
- Commodity meetings. These meetings usually are grass roots driven to meet specific concerns of the group. An example would be the Magic Valley Winter Dairy Forum in 1993 sponsored by the University of Idaho with a one day educational program on waste management/water quality concerns.
- Field day/tours. Tours of state of the art facilities and innovative practices will be conducted.
- Industry annual meetings. Presentations as directed by membership and board of directors will be made by appropriate speakers. For example, during the last three (3) years in state and out-of-state invited speakers have addressed livestock waste issues at the annual meeting of United Dairymen of Idaho. Several speakers addressed livestock waste issues at the 1993 annual meeting of the Idaho Cattlemen's Association. In 1994 speakers will address waste issues at regional beef schools and the annual meeting of the Idaho Swine Association.
- Operation of merit - Encourage each of the animal organizations to develop recognition awards based on aesthetics of the operation. It would include a properly designed, operated and maintained waste management system. DEQ, EPA and others are assisting in this evaluation.
- Continue to solicit financial resources from animal agriculture to fund projects that provide information to fill voids in our database. An example would be United Dairymen of Idaho's support of Milking Center Waste Characteristics project initiated in 1989 and supported yearly. This data will be the basis of liquid waste application guidelines.
- Cooperative workshops. Work with other agencies to conduct/coordinate waste management efforts. An example would be the February 1994 workshop "Saving and Making Money from Organic Waste: A Workshop on Sustainable Waste Management " to be held in Twin Falls. Nationally recognized experts will discuss waste management practices that result in beneficial reuse of organic waste. This workshop is supported by the University of Idaho, U.S. EPA and numerous state and local organizations.

Related Industries Education

There is a direct relationship between animal and crop agriculture. Many of the crops grown by farmers in Idaho

are utilized by animals either directly or indirectly. Crops fed directly to animals include alfalfa, silage corn, barley, wheat and field corn.

The Idaho CFO industry provides economical disposal for many food processing waste products. For example, 179,000 tons of wet beet pulp and tailage, 75,000 tons of corn cannery waste and significant tonnage of potato waste and whey are products used by the livestock industry in the Magic Valley. The livestock and food processing industries are very dependent on each other for their long-term sustainability. Without the livestock industry, food processors would have considerably greater expenses in waste disposal. In contrast the livestock industry maintains sustainability through feeding low cost by-product feedstuffs.

This symbiotic relationship between animals and crops also extends into waste management/water quality. Programs and projects to further determine the fertilizer characteristics and value of animal waste products will be continued with animal and crop farmers. Proper matching of animal waste nutrients to crop and soil condition will eliminate any pollution potential. Proper nutrient budgeting will allow manure to be spread correctly and will reduce the need for application of commercial fertilizer. Examples of on-going programs/projects include:

- University faculty will continue to determine animal waste nutrient characteristics.
- Continue to review fertilizer guides especially relative to animal waste.
- Continue to review or develop applicable computer programs to aid in matching animal waste to crop needs.

Contractors, Lenders, Processors Education

Many allied groups or people have an impact on confined animal operators either directly or indirectly. For example, education of contractors concerning animal waste requirements and regulations would be desirable as new facilities are constructed. Lenders can play a role in waste/water quality issues. Confined animal feeding operations often need to borrow capital to upgrade a waste facility and/or lenders often want to know the regulatory status of the waste system on new or purchased facilities.

Educational methods include:

- Invitations to programs, workshops, seminars, etc. already discussed.
- Specific education opportunities as determined by respective groups.
- Develop video of example livestock waste management systems. (U of I Extension faculty have received funding through Federal Water Quality Funds).

General Public Education

Animal agriculture is important to the economic well being of the Magic Valley and the whole state. Understanding

the relationship to animals, crops and water quality will continue to be covered in educational efforts. Specific innovative practices will be documented. Delivery methods included to date:

- TV and radio interviews
- Popular press articles
- Service group presentations

In addition to the educational efforts discussed, the animal industry will continue to cooperate with all agencies to develop programs and/or projects that will aid in implementation, monitoring and compliance of BMPs. An example could be the close association between animal agriculture and the canal companies. In the past it was common for livestock facilities to be built along side canals in order to provide cattle drinking water. In addition, irrigated agriculture provides direct and byproduct feeds for animal agriculture. Therefore, many confined feeding operations are found in association and close contact to canals. Because of this relationship, the monitoring program being developed by irrigated agriculture could be used to evaluate animal industries level of implementation and compliance. Another example would be to continue to support the well testing programs.

Leadership and board of directors for both the United Dairymen of Idaho and Idaho Cattlemen Association are working on supporting more effective means of reaching all operators. The Idaho Dairymen's Association is interested in finding a commonsense approach to protecting Idaho's water quality. During a joint meeting in January 1995 with federal, state, county agencies, organizations, and other groups, the idea of transferring dairy waste inspections from the US EPA and ID DEQ to the Idaho Department of Agriculture was formulated. A task force formulated the Idaho Dairy Pollution Prevention Initiative Memorandum of Understanding (i.e., Dairy MOU). The objectives of this Dairy MOU are to define roles of the agencies in regulating the dairy industry in Idaho and to recognize the Idaho State Department of Agriculture's (USDA's) lead role in ensuring dairy waste systems and practices in accordance with the provisions outlined in the *Idaho Waste Management Guidelines for Confined Feeding Operations (CFO Guidelines)*, a 1993 publication by the IDHW's DEQ. This Dairy MOU sets forth a working arrangement between the agencies and the Idaho dairymen to reduce duplicative inspection efforts, increase the frequency of inspections of dairy waste management systems and to provide a sound inspection program, in order to prevent pollution and protect Idaho's surface and groundwater from dairy waste contamination.

This Dairy MOU has been developed because of the recognition by the Idaho Dairymen's Association (IDA), ISDA, the U.S. EPA, IDEQ, and other interested parties for the need to formalize an ongoing effort to conserve resources, to more effectively and efficiently use personnel, to reduce duplicative inspection services, and to ensure Idaho dairymen comply with the Clean Water Act (CWA) and the Idaho Water Quality Standards and Wastewater Treatment Standards (IWQS). This approach will capitalize on the already frequent presence of ISDA dairy inspectors on dairy farms and is intended to enable IDEQ and the EPA to redirect and focus resources.

Current pollution contribution by CFOs is difficult to measure. The CWA and state regulations dictate zero runoff. Any producer currently allowing this is in violation of existing laws. EPA can levy a fine on an NPDES permitted CFO. Therefore, the CFO industry will utilize peer pressure to bring offenders under control as the industry does not have enforcement authority.

Implementation of the BMPs illustrated in the CFO guidelines by the livestock industry along with strict enforcement of the existing "no" runoff as required by EPA/DEQ should achieve zero nutrient contribution by animal agriculture.

MONITORING AND COMPLIANCE

Action and Compliance Timetable for the Mid-Snake Nutrient Management Plan

1985 - Aerial survey conducted by EPA.

1986 - CAFO Advisory Committee formed to develop animal waste guidelines.

1987 - CAFO Advisory Committee publish and distribute Idaho Waste Management Guidelines for Concentrated Animal Feeding Operations.

USEPA issued general permit to regulate discharges from CAFOs under CWA's NPDES permit program.

1987-88 - CAFO Advisory Committee workshop program for feedlot and dairy operators to introduce and discuss guideline concepts and practices.

1993 - Distribute state CFO guidelines to all dairy producers in Idaho.

Conduct waste management seminars at UDI and ICA annual meetings.

Conduct regional waste management seminars in southeastern, south central and southwestern Idaho.

Regional workshops (4) on NPDES permit.

University of Idaho lagoon waste water-sampling project.

1994 - Waste management seminar at Idaho Pork Producers annual meeting.

Organic Waste workshop in Twin Falls (February).

Attempted to amend Idaho Code 39-118 to give DEQ statewide authority to review plans and specifications for CFO waste facilities.

University of Idaho research project on lagoon sealing. Published.

Manure for Energy workshop in Twin Falls (December).

Develop contractor workshops on CFO facility design and construction.

1995 - Conduct contractor workshops (February).

Finalize producer education programs.

Conduct Animal Waste Management workshops in Boise valley (spring).

Develop farmer education programs in conjunction with irrigated agriculture for dealing with CFO wastes.

Continue to work on 39-118 legislation.

Develop and conduct statewide survey on producer adoption of waste management BMPs to establish a baseline of compliance in terms of which BMPs are being used and number of operations using BMPs.

Finalize criteria for "EPA Environmental Good Steward" awards as a measure of adoption of BMPs by industry.

Continue to develop "out of basin" markets for compost as means to reduce nutrients in Mid-Snake area.

1996 - First round of environmental awards.

1997 - Continue education and awards programs.

1998 - Reevaluate education programs if not achieving 10% per year environmental awards.

1999 - Repeat producer survey to determine percent of BMPs adopted.

2000 - 50% of operations achieving environmental awards.

90% of operations adopting at least some BMPs

APPENDIX A. RULES OF THE DEPARTMENT OF AGRICULTURE GOVERNING DAIRY WASTE

**IDAPA 02 TITLE 04 Chapter 14
02.04.14 - RULES OF THE DEPARTMENT OF AGRICULTURE
GOVERNING DAIRY WASTE**

000. LEGAL AUTHORITY.

This chapter is adopted under the legal authority of Title 37, Chapter 4, Idaho Code.

001. TITLE AND SCOPE.

01. Title. The title of this chapter is "Rules of the Department of Agriculture Governing Dairy Waste".

02. Scope. This chapter has the following scope: These rules shall govern the design, function and management practices of dairy waste systems. The official citation of this chapter is IDAPA 2.04.14.000 et seq. For example, this section's citation is IDAPA 02.04.14.001.

002. WRITTEN INTERPRETATIONS.

There are no written interpretations of these rules.

003. ADMINISTRATIVE APPEAL.

Hearing and appeal rights are set forth in Title 67, Chapter 52, Idaho Code. There is no provision for administrative appeal before the Department of Agriculture under these rules.

004. DEFINITIONS.

The following definitions shall apply in the interpretation and enforcement of this chapter:

01. Certified Planner. A person who has completed nutrient management certification in accordance with the Nutrient Management Standard and is approved by the department.

02. Dairy Farm. A place or premise where one (1) or more milking cows, sheep, or goats are kept, and from which all or a portion of the milk produced thereon is delivered, sold or offered for sale.

03. Department. The Idaho Department of Agriculture.

04. Director. The Director of the Idaho Department of Agriculture.

05. Discharge Violation. A practice or facility condition which has caused an unauthorized release of livestock waste into surface, ground water, or beyond the dairy farm's property boundaries or beyond the property boundary of any facility operated by the producer. Contract manure haulers, producers and other persons who haul livestock waste beyond the producer's property boundaries are responsible for releases of livestock waste between the property boundaries of the producer and the property boundaries at the point of application.

06. Farm Certification. A permit issued by the Department allowing the sale of manufacture grade milk.

07. Fieldman. An individual qualified and approved by the Department to perform dairy farm inspections.

08. Idaho Waste Management Guidelines For Confined Feeding Operations. A 1993 publication as amended in 1997 by the Idaho Department of Health and Welfare, Division of Environmental Quality which is hereby incorporated by reference. Copies of the guidelines are available at the Idaho Department of Agriculture, 2270 Old Penitentiary Road, Boise, Idaho 83712.

09. Inspector. A qualified, trained person employed by the Department to perform dairy farm

inspections.

10. Livestock. For the purposes of these rules the term livestock shall include bovidae, suidae, equidae and other animals that are kept on or contiguous to a dairy farm and are owned or controlled by a dairy farm.

11. Livestock Waste. Manure that may also contain bedding, spilled feed, water or soil. It also includes wastes not particularly associated with manure, such as milking center or washing wastes or milk, or livestock carcasses or parts thereof.

12. Manufacture Grade Milk. Milk produced for processing into dairy products for human consumption but not subject to Grade A requirements.

13. Memorandum of Understanding. The October 1995 Idaho Dairy Pollution Prevention Initiative Memorandum of Understanding between the Environmental Protection Agency, Division of Environmental Quality, Idaho Department of Agriculture and the Idaho Dairymen's Association. The memorandum is hereby incorporated by reference and copies of the memorandum are available at the Idaho Department of Agriculture, 2270 Old Penitentiary Road, Boise, Idaho 83712 and through the Department of Administration, Office of Administrative Rules, located at 650 West State Street, Room 100, Boise, Idaho 83720.

14. Non-Compliance. A practice or facility condition which will cause a discharge violation if left uncorrected or a condition on a dairy farm that does not meet the requirements of the Idaho Waste Management Guidelines for Confined Feeding Operations, the Nutrient Management Plan, Nutrient Management Standard, and Appendix 10D.

15. Natural Resource Conservation Service Agricultural Waste Management Field Handbook Appendix 10D (Appendix 10D). A 1997 publication by USDA, NRCS which is hereby incorporated by reference. Copies of this publication are available at the Idaho Department of Agriculture, 2270 Old Penitentiary Road, Boise, Idaho 83712 and through the Idaho State Law Library, Supreme Court Building, 451 West State Street, Boise, Idaho 83720.

16. Nutrient Management Plan (NMP). A plan prepared in conformance with the nutrient management standard or other equally protective standard approved by the department for managing the amount, source, placement, form, and timing of the land application of nutrients and soil amendments for plant production, and for minimizing the potential for environmental degradation, particularly impairment of water quality.

17. Nutrient Management Standard (NMS). The 1999 publication by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Conservation Practice Standard, Nutrient Management Code 590, or the 1999 Idaho Agricultural Pollution Abatement Plan - Nutrient Management Standard Component Practice, which are hereby incorporated by reference. Copies of these publications are available at the Idaho Department of Agriculture, 2270 Old Penitentiary Road, Boise, Idaho 83712 and through the Idaho State Law Library, Supreme Court Building, 451 West State Street, Boise, Idaho 83720.

18. Permit. A permit issued by the Department allowing the sale of Grade A milk.

19. Person. Any individual, partnership, association, corporation, or any organized group of persons whether incorporated or not.

20. Producer. The person who exercises control over the production of milk delivered to a plant, and who receives payment for this product.

005. FINDINGS.

The Department finds that pursuant to Section 67-5226(1), Idaho Code, these rules are necessary to protect the public health, safety, and welfare of Idaho, enhance Idaho water quality and preserve the integrity of the

Idaho dairy industry. These rules establish design, construction, operation, location, and inspection criteria for dairy waste systems on Idaho dairy farms and enable the department to implement the 1999 NRCS nutrient management standards on dairy farms to appropriately manage livestock waste. These rules also provide penalty provisions.

006. -- 009. (RESERVED).

010. PERMITS AND CERTIFICATION.

No producer shall offer for sale or sell milk unless the producing dairy farm has been issued a Grade A permit or a Farm Certification from the Department.

01. Grade A Permit. A permit issued by the Department if the dairy farm complies with the requirements of the Pasteurized Milk Ordinance and has in place and operates a dairy waste system consistent with the Idaho Waste Management Guidelines for Confined Feeding Operations, NMP, NMS and Appendix 10D.

02. Farm Certification. A certification issued by the Department if the dairy farm complies with the requirements of IDAPA 02.04.05, "Rules Governing Manufacture Grade Milk," and has in place and operates a dairy waste system consistent with the Idaho Waste Management Guidelines for Confined Feeding Operations, NMP, NMS, and Appendix 10D.

011. WASTE SYSTEM APPROVAL.

The Department is authorized to approve the design, construction, operation, and location of dairy waste systems. These systems must conform to the Idaho Waste Management Guidelines for Confined Feeding Operations, NMP, NMS, and Appendix 10D.

012. INSPECTIONS.

Each dairy farm shall be inspected by an inspector or fieldman at least annually or at intervals sufficient to determine that dairy waste has been managed to prevent an unauthorized discharge or contamination of surface and ground water. An official inspection report form as described in Section 013 will be completed at the time of inspection.

013. INSPECTION REPORT FORMS.

An inspection report form shall be established by the Department based on parameters established in the Idaho Waste Management Guidelines for Confined Feeding Operations, NMP, NMS, and Appendix 10D. Each inspection item on the form shall indicate compliance and non-compliance.

014. COMPLIANCE SCHEDULES.

01. Non-Compliance Or Discharge Violations Identified. When the Director identifies items of non-compliance or discharge violations, the deficiencies will be noted and discussed with the producer. Appropriate corrective actions will be identified and scheduled informally. The Director may develop a formal compliance schedule in the following cases:

- a. When corrective actions cannot be completed within thirty (30) days;
- b. When corrective actions require significant capital investment;
- c. When informal schedules have not been complied with.

02. Re-Inspection. Re-inspection of the dairy farm will be conducted as appropriate, to ensure compliance. A discharge violation shall be corrected immediately, when at all possible.

015. PENALTIES.

The Director may suspend the producer's permit or farm certification authorizing the producer to sell milk until such time that the dairy farm is in compliance. Repeat non-compliance violations on significant items, discharge violations, or violation of formal compliance schedule also may cause a dairy farm to lose authorization to sell milk.

016. REINSTATEMENT.

Whenever a producer has lost authorization to sell milk for human consumption under the provisions of Section 015, the producer may apply for reinspection. A reinspection, conducted by an inspector or fieldman, will be made; if corrections have been made, the producer will be reinstated.

017. DURATION.

These rules will no longer be in effect if or when the Memorandum of Understanding defined in Subsection 004.13 is revoked or expires.

018. -- 999. (RESERVED).

**APPENDIX B. NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
NUTRIENT MANAGEMENT
(Acre)
CODE 590**

NRCS, ID

June, 1999

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

DEFINITION

Managing the amount, source, placement, form, and timing of the application of nutrients and soil amendments.

PURPOSES

It is intended that nutrient management plans developed from this standard be used to help producers improve or maintain their level of management and expertise as it relates to the application of nutrients on the lands they own and/or control.

- To budget and supply nutrients for plant production.
- To minimize the potential for environmental damage including agricultural non-point source pollution of surface and ground water resources.
- To maintain or improve the physical, chemical and biological condition of soil.
- To properly utilize all sources of organic material including animal waste as a plant nutrient source.
- To prevent or reduce excess nutrient concentrations in the soil.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all lands where plant nutrients and soil amendments are applied.

CRITERIA

General Criteria Applicable to All Purposes

- Plans for nutrient management shall comply with all applicable federal, state, and local laws and regulations.
- All nutrient management plans that address land application of animal waste shall comply with the State of Idaho Waste Management Guidelines for Confined Feeding Operations.
- Plans for nutrient management shall be developed in accordance with policy requirements of the NRCS General Manual Title 450, Part 401.03 (Technical Guides, Policy and Responsibilities) and Title 190, Part 402 (Ecological Sciences, Nutrient Management, Policy); technical requirements of the NRCS Field Office Technical Guide (FOTG); procedures contained in the National Planning Procedures Handbook (NPPH), and the NRCS National Agronomy Manual (NAM) Section 503.

- Persons who approve plans for nutrient management shall be certified through the joint Idaho Department of Agriculture, NRCS, and University of Idaho (U of I) certification program.
- A nutrient budget for nitrogen, phosphorus, and potassium shall be developed that considers all potential sources of nutrients including, but not limited to, animal waste and organic by-products, waste water, commercial fertilizer, crop residues, legume credits, and irrigation water.
- Nutrient budgets shall use:
 1. U of I of Idaho Fertilizer Guides.
 2. Recommendations with an equivalent research database approved by a committee made-up of industry, university and agency representatives.
 3. Crop uptake values (Chapter 6, NRCS Agricultural Waste Management Field Handbook).
 4. Tables, values and guides generated from Idaho Animal Waste Management Program (IDAWM) or other state approved programs.
 5. Those contained in the NRCS Agricultural Waste Management Field Handbook, (AWMPH).
- If actual analysis data is available for applied waste, or if waste sources are unique, then use actual analysis values in lieu of standard values. If actual analysis data is not available, nutrient content of waste, organic by-products, septage, and cover crops shall be determined using standard values contained in NRCS Agricultural Waste Management Field Handbook (AWMFH) Chapter 4, ASAE D-384, or U of I of Idaho Fertilizer Guides.
- Yield goals for the crops included in the recommendation shall be based on proven yield by the producer, and achievable yield goals for the area including advancements in technology. Yield goals shall be established for every crop in the rotation.
- Nutrient management plans shall specify the form (liquid, gas or solid), source (dairy, feedlot, commercial fertilizer, etc.), amount, timing, and method of application of nutrients on each field or Conservation Treatment Unit (CTU) to achieve realistic production goals, while minimizing nitrogen and/or phosphorus movement to surface and/or ground water.
- The soil test phosphorus level above which there is no agronomic advantage for application of additional phosphorus is the Phosphorus Threshold (TH) for crops grown in Idaho. The TH is used in the nutrient budgeting process to determine application rates, and to determine trends in soil P concentrations over time. A soil test P concentration is a chemical evaluation of the capability of the soil, as represented by a soil sample, to supply plant available P during the growing season to achieve a desired yield response.
- If nutrient requirements are not available for new or specialty crops use local data from the producer or industry.
- Crop rotations shall be documented in the nutrient management plan.

- Irrigation Water Management as prescribed by the Irrigation Water Management Standard (Code 449), shall be a component of a nutrient management plan if nutrients are applied on irrigated cropland.
- Refer to the Nutrient Application Timing section of this standard for required runoff control practices.

Soil Sampling and Laboratory Analysis

- Soil samples shall be collected and prepared in a manner representative of the entire field (see U of I CES NO. 704, Soil Sampling for an example).
- Soil test analysis will be performed using analytical methods prescribed by the North American (formerly the Western States) Laboratory Proficiency Testing Program. Soil test P will be determined using the Bray 1 method for soils with no free lime ($\text{pH} < 6.5$) and the Olsen method (NoHCO_3) method for soils with free lime ($\text{pH} > 6.5$).

Soil Testing - Development of the Initial Nutrient Management Plan

- A nutrient management plan for N budgeting shall be developed using current soil tests taken in the spring prior to seeding a spring crop, in the fall prior to seeding a fall crop, or in the spring following a fall seeded crop.
- A nutrient management plan for P budgeting can be developed using soil tests taken anytime during the year.
- Soil tests for P are taken for two main purposes: 1) to develop the P nutrient budget; and 2) for comparison to the appropriate P Threshold value. In some cases, one soil test will serve both purposes.
- Current soil tests for purposes of developing the nutrient budget shall be taken as described in Table 15.

| Depth | Nutrient Analyzed |
|----------------|--|
| 0 - 12 inches | NO_3 - N, NH_4 - N, P, & K |
| 12 - 24 inches | NO_3 - N, NH_4 - N |

A complete lab analysis should be made of samples taken from the first foot for all nutrient management plans. Fields that are part of a long term sod, pasture, or alfalfa in rotation, may not require annual soil tests. Soil tests are to be taken when nutrients will be applied as part of an on-going management program. Non-inversion cropping systems (i.e., no till) or areas where resource problems dictate closer management may require soil samples in zones less than 0 - 12".

- Soil tests taken for comparison to the P threshold will be taken at one of two depths, as described in Table 16, dependent upon on-site surface or ground water resource concerns.

Surface water runoff concerns exist when runoff leaves the contiguous operating unit from normal storm events, rain on snow or frozen ground, or irrigation.

Ground water concerns exists when a high water table, fractured bedrock, cobbles, gravel, or coarse-textured soils are conducive for the downward movement of water and associated nutrients.

| Primary Resource Concern | P Threshold Soil Sample Depth |
|--|--------------------------------------|
| Surface Water Runoff | 0 - 12" |
| Ground Water, fractured bedrock, cobbles or gravel | 18 - 24" |

When considering soil P levels, a surface water resource concern is the priority concern. If both concerns exist, a surface water concern takes priority. If neither concern exists, then the nutrient management plan is developed based on the TH for the ground water concern to prevent concentrations of nutrients above the agronomic requirement of the crop, and to maintain soil quality and long term sustainability of the cropland resource.

- To meet local nutrient requirements, as identified in the fertilizer guide or approved industry recommendations, the 0 - 12" soil test can be used to determine other diagnostic needs.
- Fields that are part of a nonirrigated cropland rotation that includes summer fallow do not have to be soil tested the year the field(s) are in summer fallow.
- In situations where specialty crops are raised, or environmental considerations have been identified (high water tables, leaching vulnerability, tile drains, fractured bedrock, deep or shallow soils), sampling greater than or less than the prescribed depths may be appropriate. The NRCS soil survey data is sufficient to make this determination unless site specific conditions vary substantially from the survey. The production system and environmental considerations will determine soil-sampling depth. Soil samples will represent the field or CTU being planned.
- Phosphorus Threshold (TH) concentrations by resource concern are described in Table 17. Use the primary resource concern identified and site characteristics to determine the TH of the site.

| Primary Resource Concern | P Threshold Concentration | |
|--|----------------------------------|---------------|
| | Olsen | Bray 1 |
| Surface Water Runoff | 40 PPM | 60 PPM |
| Ground Water, fractured bedrock, cobbles or gravel | | |
| | < 5 feet | 20 PPM |
| | > 5 feet | 30 PPM |
| | 25 PPM | 45 PPM |

Soil Testing - Maintenance of the Nutrient Management Plan

- For purposes of developing annual nutrient budgets, soil samples will be taken and analyzed as described in Table 1.
- For purposes of tracking P trends, soil samples will taken and analyzed as described in Table 2 and as follows:
Surface water resource concern: Use the soil P concentration determined from the 0-12 inch sample taken for

development of nutrient budgets.

Ground water resource concern: The TH soil test for P at the 18-24 inch zone is required to track P trends. If results of the initial soil test for P are less than 75% of the TH, then soil samples for comparison to the TH can be taken once every 5 years to monitor trends of P in the profile and to make adjustments in the plan as necessary.

Plant Tissue Testing

- Tissue sampling and testing is recommended during the growing season to monitor crop nutrient concentrations.
- Tissue sampling shall be done in accordance with U of I of Idaho guidelines or the guidelines of the laboratory performing the tissue analysis.

Nutrient Application Rates

- Acceptable nitrogen, phosphorus and potassium application rates shall be established according to the U of I of Idaho Fertilizer Guide or recommendations from an approved equivalent research database, and will be based on soil tests as identified in the previous section under Soil Testing.
- Nitrogen application rates will be determined for each crop in the rotation.
- Phosphorus application rates will be determined for a single crop or for the crop rotation. Table 18 includes P application rates based on soil test P concentrations as compared to the site TH.

Table 18. P application rates based on soil test P as compared to the site threshold

| <i>Soil Test P</i> | <i>P Application Rate</i> |
|-------------------------|--------------------------------------|
| Surface Water | |
| < TH (PPM) | Recommended rates or Crop P uptake |
| > TH (PPM) ¹ | Crop P uptake |
| Ground Water | |
| < TH (PPM) | Recommended P rate or Nitrogen based |
| > TH (PPM) ¹ | Crop P uptake |

¹ Note: When soil test P concentrations are above the TH, the planner, in cooperation with the producer, will design a nutrient management plan that will reduce soil test P concentrations below the TH and minimize potential off-site transport. This may require adjustments in crop rotation, irrigation method and scheduling, form, timing or placement of P applied, and changes in P application rates less than crop P uptake.

- If soil test P concentrations are above the TH, then crop uptake values will be used in development of the nutrient budget regardless of the nutrient source.
- Potassium application shall not exceed the recommended rate except when concentrations in the soil are determined not to cause unacceptable nutrient imbalance in crops and forage quality, and do not become limiting to crop growth and sustainability.

- Starter fertilizers are considered a part of the nutrient budget.
- Nutrient applications are recommended when plant tissue tests indicate a need for nutrient application to correct or prevent a deficiency.
- Calibrate waste and fertilizer application equipment to ensure recommended rates are applied.

Nutrient Application Timing

- Application of solid wastes. Solid waste shall be incorporated unless applications are made on frozen ground, perennial crops or cropland under no-till; in those cases, emergency tillage (i.e. chiseling and disking cross slope), construction of berms or other containment practices will be applied to prevent surface runoff.
- Application of liquid wastes. Application of liquid waste shall not be made outside the active growing period of the crop, unless a water budget for the site shows that deep percolation of wastewater or runoff will not occur prior to the next crop-growing season. Liquid waste shall be applied to crops at amounts not exceeding soil water holding capacity in the crop-rooting zone. Application of liquid wastes through surface or sprinkler irrigation systems will be timed to prevent deep percolation or runoff. The number of applications will be based on the volume of waste to be disposed of as well as related concerns with surface runoff and deep percolation.
- Application of commercial fertilizer. Timing of applications shall be sufficient to provide adequate plant establishment, growth and residue decomposition not to exceed U of I Crop Fertilizer Guides or an approved equivalent research database or crop uptake values and to avoid surface runoff and/or leaching.
- If most of the commercial N is applied in the fall for a subsequent spring crop, applications shall be made when soil temperatures are low enough to minimize nitrification (< 50° F), or with a nitrification inhibitor, or controlled release fertilizer.

Criteria Applicable to Utilizing Organic Waste Resources as a Plant Nutrient Source

- Organic biosolids, (i.e. waste from food processing facilities), shall be applied as prescribed by federal, state, or local regulations.

Criteria for Maintenance or Improvement of Physical, Chemical or Biological Condition of Soil

- Biosolids, other than animal waste, and sewage sludge shall be applied as prescribed by federal, state, or local regulations (40 CFR parts 403 and 503).
- Biosolids and by-products shall be applied to the soil as prescribed by federal, state and local regulations. Records of application and content of biosolids must be maintained as required by the state.

Additional Criteria to Protect Water Quality on Vulnerable Sites

- If the field or CTU lies within a hydrologic unit area that has been designated as having impaired water quality associated with nutrients, is within an area where nutrient contamination has been identified as a ground water

quality concern, or is within a sole source water or wellhead protection area where nutrient contamination is of special concern due to high or very high vulnerability then, the nutrient management plan shall include an assessment of the potential risk for nitrogen and/or phosphorus to adversely impact water quality. The Nitrogen Leaching Index and/or the Phosphorus Index (PI), or other acceptable assessment tools may be used to make these assessments.

- Nutrient management plans shall include a record of site vulnerability ratings for each field or CTU and necessary conservation practices and management actions that will reduce the potential for nutrient movement from fields or CTUs with a high or very high vulnerability rating.

- Utilize nutrient timing and placement to reduce Nitrogen and Phosphorus pollution of ground and surface waters. Special consideration will be given to application and placement of nutrients on sensitive areas (i.e., Highly Erodible Lands (HEL), within flood plains, near sensitive water bodies, in areas of ground water contamination from nutrient applications, within sole source water, wellhead protection areas, or within other areas of water quality concern).

In areas of special consideration, methods will include:

1. Apply nutrients to crop fields to avoid or reduce potential of transport to gullies, ditches, surface inlets, sinkhole areas, or wellhead area.
2. Do not apply animal waste on sites where runoff is delivered directly to a conveyance channel or receiving water body unless runoff is treated with a conservation buffer or other mitigating practice prior to delivery.

In areas of special consideration, recommended methods may include:

1. Split applications of Nitrogen to provide nutrients at the times of maximum crop uptake.
2. Band or place applications of phosphorus near the seed row.
3. Incorporate broadcast fertilizer on cultivated crops.
4. Farm on the contour or cross slope on all fields adjacent to wetlands if nutrient runoff appears to pose a more significant hazard than leaching.
5. Utilize fall cover crops whenever possible to immobilize residual nitrogen and retain for spring crops.
6. Utilize Conservation Cover, Residue Management, Conservation Crop Rotation, Grassed Waterway, Irrigation Water Management, Vegetative Buffer Strips and other conservation practices as needed to protect or improve water quality.

CONSIDERATIONS

- Individual conservation practices should be planned as part of a comprehensive conservation plan, which addresses all resource, concerns on the unit and reaches a Resource Management System level of treatment.

- Rotations included in a nutrient management plan should meet the criteria of the Conservation Crop Rotation standard (Code 328).
- When soil test P concentrations approach 75% of the TH, consider developing the nutrient management plan using crop P uptake for application rates. Recognize that at 75% of TH, concentrations of P are approaching the TH and management changes should be considered.
- Vary the amount of fertilizer in different parts of the field to account for differing fertilizer needs and the potential for leaching and runoff.
- Consider applying liquid wastes mixed with irrigation water during the last 1/4 to 1/3 of the irrigation set to minimize deep percolation and runoff.
- Consider split applications of nitrogen to provide nutrients at the times of maximum crop utilization, especially on fall seeded crops.
- Consider routine mineral and nitrate nitrogen status testing of forages produced from land with long term and/or heavy waste application rates. Excessive soil potassium can lead to high potassium levels in forages, especially legumes like alfalfa, produced for livestock. Excess potassium intake by cattle is associated with decreased magnesium absorption, decreased feed intake and milk production, increased intake of water, and increased urine output. High dietary levels of potassium are a major concern during the dry period. Plants with high levels of potassium and low levels of magnesium can cause grass tetany, a non-infectious metabolic disease in cattle.
- Consider limited application of organic materials with high heavy metal concentrations.
- Consider analyzing products from industrial processing used as fertilizer or soil amendments for heavy metals or other contaminants to prevent their buildup in the soil.
- Consider cover crops whenever possible to utilize and recycle residual nitrogen.
- Band applications of phosphorus near the seed row.
- Applying nutrient materials uniformly to application areas or as prescribed by precision agricultural techniques.
- Delaying field application of animal wastes or other organic by-products if precipitation capable of producing runoff and erosion is forecast within 24 hours of the time of the planned application.
- Consider the potential problems from odors associated with the land application of animal wastes, especially when applied near or upwind of residences.
- Consider nitrogen volatilization losses associated with the land application of animal wastes. Volatilization losses can become significant, if wastes is not immediately incorporated into the soil after application.

PLANS AND SPECIFICATIONS

- Plans and specifications shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose(s), using nutrients to achieve production goals and to prevent or minimize water quality impairment.
- The following components shall be included in the nutrient management plan:
 1. Aerial site photograph or map and a soil map.
 2. Current and/or planned plant production sequence or crop rotation.
 3. Results of soil, plant, water and organic sample analyses.
 4. Realistic yield goals for the crops in the rotation.
 5. Quantification of all nutrient sources.
 6. Recommended nutrient rates, timing, and method of application and incorporation.
 7. Location of designated sensitive areas or resources and the associated practices or methods planned to protect the area.
 8. Guidance for implementation, operation and maintenance of the nutrient management component of the conservation plan.
 9. Complete nutrient budget for nitrogen, phosphorus, and potassium for the rotation or crop sequence.
- When nutrient management plans are expected to increase soil phosphorus concentrations, such that concentrations approach the TH, plans shall include:
 10. A caution that phosphorus accumulation in the soil can occur and that the potential for such accumulation can contribute to water quality impairment, animal health, or crop production problems.
 11. A discussion of the time interval after which it may be necessary to convert to phosphorus based waste or nutrient application rates for plan implementation.
 12. The potential for soil phosphorous drawdown from the production and harvesting of crops.

OPERATION AND MAINTENANCE

Nutrient Management Plan Review and Revision

The owner/client is responsible for safe operation and maintenance of this practice including all equipment. Operation and maintenance addresses the following:

- Nutrient management plans shall be reviewed annually by the producer or their representative to determine if adjustments or modifications are needed. Annual reviewers, including the producer, need not be certified.
- The producer or their representative, shall revise the plan, as needed, to reflect significant changes in the operation that affect the overall nutrient management plan or upon change in landowner or tenant. Significant changes may include:
 1. Increase in livestock by 10%;
 2. Major changes to waste handling and storage system;
 3. Increase or decrease in application area by 10%;
 4. Change in crop or crop rotation;
 5. Change in irrigation system;
 6. New designation as a sensitive area.

Safety

- Protect fertilizer and organic by-product storage facilities from weather and accidental leakage or spillage. Storage of manure, fertilizers and cleaning of application equipment should be done away from a wellhead.
- Calibration of application equipment to ensure uniform distribution of material at planned rates.
- Backflow protection devices shall be installed according to Idaho chemigation requirements when using irrigation systems for application or distribution of liquid waste or commercial fertilizer.
- Workers should be protected from and avoid unnecessary contact with chemical fertilizers and organic by-products. Protection should include the use of protective clothing when working with plant nutrients. Extra caution must be taken when handling ammonia sources of nutrients, or when dealing with organic wastes stored in unventilated enclosures.
- The disposal of material generated from cleaning nutrient application equipment should be stored and disposed of properly. Excess material should be collected and stored, or field applied in an appropriate manner. Excess material should not be applied on areas of high potential risk for runoff and leaching.
- The disposal or recycling of nutrient containers should be done according to state and local guidelines or regulations.

Field Records

- The producer will maintain field level records for a minimum of five years. As applicable, records include:
-

1. Soil, plant tissue, organic, and water test results as collected and recommendations for nutrient application.
2. Quantities, analyses and sources of nutrients applied.
3. Approximate dates and methods nutrients were applied.
4. Crops planted, planting and harvest dates, yields, and crop residues removed.
5. Dates of annual review and person performing the review and recommendations that resulted from the review.
6. Any additional information as required by this standard, (i.e. Site Vulnerability, Site Risk Assessment, Biosolid application records, and other appropriate cautions and discussions).
7. Suggested Additional Records as applicable:
 - *Irrigation Water Management evaluations.
 - *Recommended conservation practices and management actions that can reduce the potential for nutrient movement.

Appendix C. Odor Management Plan Guidelines

Source: Idaho State Department of Agriculture, Technical Services,
P. O. Box 790
Boise, Idaho 83701-0790
Phone: (208) 332 - 8665
Fax: (208) 334 - 4062

Tiered Implementation

The plan should be based on a 3- tier implementation process. This process should begin with the simplest method for odor reduction and progress up to more complex methods. Always involve a cost evaluation with each tier to ensure that the BMP/ BAT being implemented is economically feasible and beneficial.

Tier #1

Tier 1 should pertain more to management changes, low cost BMPs/ BATs. It should contain a bulleted list of primary BMPs and /or BATs that are going to be implemented discussing these topics for each bullet:

- How and when it will be implemented
- Estimate of cost to implement and benefit
- Sources it will impact (reduce odor emission)
- How it will be monitored to demonstrate reduction
- General quantitative and/ or qualitative reduction goals.

Tier #2

Tier 2 should pertain to more intense management changes and/ or mid cost BMPs/BATs. It should contain a bulleted list of the secondary BMPs and /or BATs that are going to be implemented. Each bullet should contain the same type of information as Tier #1.

Tier #3

Tier 3 should pertain to intense management changes and/ or mid- high cost BMPs/ BATs. Presented in the same type of format and information as Tier #1 and Tier #2.

Public Involvement

A description of how the public will be involved in the process. This may be phone contact, small public meetings, newsletters, etc.

Review

State that the plan will be evaluated after each tier, when each will be reviewed, how, and by whom.

Cover Sheet

All Odor Management Plans should have a cover sheet that identifies:

- The facility the plan was prepared for
- Who prepared the plan
- Whom they are associated with (I. e. consulting firm, engineering firm, university. etc)
- Primary contact Phone number
- Signature line for reviewer to sign and date

Facility Information

The odor management plan should contain the following information in table or paragraph form:

- The facility name (optional)
- Physical address of the facility
- County
- Owner and Operator
- Other contacts associated with implementation of the plan
- Phone numbers— Facility and primary numbers for listed contacts

Facility Description

A general description of the facility that includes:

- Type of facility
- Number of animals present and future
- Age ranges Breeds (for feedlot facilities note the majority breed (s)
- Type of housing used related to age groups
- General descriptions of nearby residential and public use areas etc.
- Scaled Vicinity Map
- All residences
- Public use areas
- Roads general topography etc.
- Other CAFO facility within a 2- mile radius of the facility.

Maps information can be found in several locations some are listed in the Help Section.

Manure Management Systems

A very detailed description of the present manure handling system and management is needed in order to make a wise decision about potential sources. This description should include:

- Cleaning systems and management.
- Transfer systems and management
- Separation systems and management
- All should include:
 - Timing
 - Frequency
 - Duration
 - Volumes

- Dimensions
- Flow rates
- Location of bypasses etc.

- Scaled Site Plan (if not already on file with ISDA) - to determine if a site plan has been submitted contact the Dairy or Beef program listed in the Help section

Land Application Systems

A detailed description of present management practices and methods used to land apply both solid and liquid manure. This section should include the following items:

- Type of equipment used
- Delivery system (primarily for liquid manure)
- Timing, frequency, and duration of practices
- Proximity of residential and public use areas to land application sites
- Land Application Site Plan (optional): facility may already have one on file with ISDA in a Nutrient Management Plan.

Climatic Data

This section should contain typical climatic conditions for the area, as well as, conditions when odor is most prevalent (if varies from typical). Information should include the following items supporting documentation:

- Wind speed and direction (s)
- Temperature ranges during seasons
- Relative humidities
- Precipitation

This information should be obtained for the local area or on- site weather station data. Information can be obtained at several websites; a few are listed in the Help Section.

Facility Odor Sources

A bulleted listing of all primary odor-sources on the facility with a general ranking of low, moderate, or high. An explanation of why it is a listed source and the reasoning behind its respective ranking should be included. Sources with low odor production should also be listed with an explanation of current practices that make it so. Be sure to include the positive management/ technologies being used. Typically, even though a facility has an odor problem, there are already management practices in place to reduce total odor production. When ranking sources on a facility, there are several things that must be taken into consideration. A few are listed next.

- Surface area— more SA, more emission surface
 - Organic Loading (BOD) - High BOD, high microbial activity, more gas production
 - Moisture content— High moisture, more aerobic
 - Nutrient levels— High N, more ammonia release
 - Chemical compounds (H₂S, NH₃, VFAs, VOCs)
 - Listing of potential sources on a CAFO operation: liquid storage ponds, solid storage areas, animal housing, scraping, separation systems, flushing, land application, feed storage areas, feed alleys, pumping
-

stations.

If testing is done for the sources on the facility, this information should be included in the OMP as justification for ranking and to assist in the evaluation of the plan. Typically, the human nose will work for determining sources and their potential ranking. However, every-one's olfactory senses are different in their ability to detect certain compounds and judging the offensiveness (hedonic tone) of odors. Also research has shown that odors produced by CAFO's consist of 150-170 different chemical compounds. Several methods are presently being researched and used to measure odor reduction. No one method has presently been shown to truly represent odor intensity and/ or offensiveness. Here are just a few.

- Measuring for reduction in BOD— indicates the system is becoming more aerobic
- Olfactometry— collecting air samples and presenting them before a panel of trained/calibrated individuals to measure intensity. Typically done by specific laboratories
- Scentometer— device used in the field to evaluate odor intensity
- N- butanol Scale— Different dilutions of N-butanol used to compare odor intensity.
- Emission testing— Use of flux chambers (hoods) to collect air samples at certain flow rates. Air samples are then analyzed for certain compounds using GC/ MS
- Electronic nose— Using an electronic device that measures the ppm of one or more compounds

The following information is intended to assist CAFO producers, engineers, and consultants in the development of Odor Management Plans for CAFO operations in Idaho. The Idaho State Department of Agriculture has created a recommended Odor Management Plan format for dairy and feedlot operations. This document references this format in its structure and guidance. Several assistance-oriented contacts and documents are listed within.

HELP SECTION

Technical Services

Website - currently in development

(208) 332-8665 Boise Office

(208) 236-6355 Pocatello Office

E-mail: tkator@agri.state.id.us

Dairy Bureau

(208) 332-8550

Beef Bureau

(208) 332-8546

Documents

- USDA Agricultural Air Quality Task Force white paper
- ASAE EP379.2 Control of Manure Odors
- ASAE EP403.3 Design of Anaerobic Lagoons
- ASTE E544 Suprathreshold Odor Intensity

Websites

<http://www.bae.umn.edu/extens/>

<http://ohioline.og.ohio->

ostate.edu/lines/stock.html

<http://pasture.ecn.purdue.edu/~odor>

Climatic Data

- Agrimet - mac1.pn.usr.gov/agrimet
- NCDC - www.ncdc.noaa.gov
- U of I - www.uidaho.edu/~climate

Maps

- USGS, NRCS, library, outdoor stores
- DeLorme 3-D topo quad software, National Geographic topo software, Maptech software, etc.
- Terraserver.com
- Topozone.com

Part 9

Recreation Industry's Implementation Plan

I. INTRODUCTION

The recreation industry in the Upper Snake Rock subbasin is varied and in development. This industry is made up of private firms that directly target the public for recreational endeavors, and public/state agencies (USBLM, USFS, US Parks and Recreation, IDFG) that provide areas or facilities for the public's recreational opportunities. Concerns for the public in recreational areas are public safety, public health, physical hazards, and sensitive-specific excluded areas.

II. PUBLIC INVOLVEMENT

Recreation is one of the few industries that bring the public into direct contact with water quality and its beneficial uses. For purposes of this implementation plan, the public has always participated in the public comment process for TMDL development. As part of that process, the public will be given an opportunity to comment on the implementation plan of all water user industries in the Upper Snake Rock Implementation Plan.

The recreational industry is represented in the Middle Snake Watershed Advisory Group and in the Upper Snake Basin Advisory Group.

III. IMPLEMENTATION TIMELINE

There is no implementation timeline set for the recreational industry. However, the protection of water quality and restoration of beneficial uses is of paramount concern to all recreationists who use the waters of the Middle Snake River or its tributaries. Degradation of water quality can have a significant impact on the recreational economic viability of such waters by the public. Therefore, it is important for all recreationists to obey the imposed rules and regulations on the waterways, particularly on streams that are water quality limited.

IV. PROPOSED MANAGEMENT ACTIONS AND LINKAGE TO BENEFICIAL USES

All rules and regulations that are imposed on the waterways of Idaho are based on the protection for beneficial uses and/or state water quality standards. Recreation is especially linked to primary and secondary contact recreational standards as defined in IDAPA rules and regulations. As defined in the Upper Snake Rock TMDL, all waters will be protected for primary contact recreation (as a default) unless recreational fishing, boating, or otherwise is a secondary use, in which case all waters will be protected for secondary contact recreation.

Primary contact recreation indicates that water quality is appropriate for prolonged and intimate contact by humans or for recreational activities when the ingestion of small quantities of water is likely to occur. Such activities include, but are not restricted to, those used for swimming, water skiing, or skin diving (IDAPA 58.01.02.100.02.a).

Secondary contact recreation indicates that water quality is appropriate for recreational uses on or about the water and which are not included in the primary contact category. These activities may

include fishing, boating, wading, infrequent swimming and other activities where ingestion of raw water is not likely to occur (IDAPA 58.01.02.100.02.b).

V. COMPLIANCE ACTIONS

Compliance actions are based on the existing rules and regulations that protect the waterways and surface waters of the State of Idaho. On all 303(d) waterbodies that have recreational accessibility, compliance with the Upper Snake Rock TMDL and its components for restoration of beneficial uses and /or state water quality standards are mandatory and non-exempt.

VI. THREATENED AND ENDANGERED SPECIES PROTECTION

As with all public and state agencies, water-borne species that are threatened or endangered must be protected from the impacts of recreation. See Part 0, Introduction, VI. Threatened and Endangered Species.

As part of the National Environmental Protection Act (NEPA) process and in conjunction with the Endangered Species Act recreational activities are considered nonpoint source activities that have the potential to cause pollutant discharge to waters of the United States. It is highly probable that a biological evaluation may be required to analyze the effects of recreational activities on listed species. The evaluation may lead to consultation with USFWS under section 7 of the Endangered Species Act regarding the impact of those activities on the listed species. The USFWS may subsequently issue a Biological Opinion. The USFWS may identify "reasonable and prudent measures" that must be addressed by the responsible federal agency in order to minimize incidental take. Measures listed in the Incidental Take Statement are "non-discretionary, and must be implemented by the federal agency so that they become binding conditions of any grant or permit issued to a permittee.

Because State of Idaho waters are involved in this permitting action, the provisions of Section 401 of the Clean Water Act apply. In accordance with 40 CFR §124.10(c)(1), public notice of the draft permit will be provided to the State of Idaho agencies having jurisdiction over fish, shellfish, and wildlife resources.

VII. IDENTIFICATION OF STAKEHOLDERS

There are a large number of stakeholders that are relying on the viability and success of the Upper Snake Rock TMDL. In addition to private firms that have their recreational business in the waters of the Middle Snake River, state and federal agencies also have recreational components that are depending as well on the success of the Upper Snake Rock TMDL, particularly for the Middle Snake River. This includes boaters, RV users, fishermen, and/or other recreationists.

VIII. REASONABLE ASSURANCE

Recreation is considered a nonpoint source of pollution. At this time it is uncertain to what extent recreation contributes sediment, phosphorus, and/or bacteria. But it is certain that an excess of recreational activities on specific sites can cause significant contributions of sediment, phosphorus, and/or bacteria to natural streams. This is particularly important in parks where people congestion becomes a problem at site-specific areas along a stream, causing the denuding of banks and the generation of excess sediment into the waterbody. At this time the only reasonable assurance that nonpoint source pollution will be kept to a minimal is based on the rules and regulations that are applicable to the particular recreational area. The public will comply with all rules and regulations and

be proactive in the area of pollution prevention. Educational mechanisms are in place that are being considered by the Middle Snake WAG.

On all 303(d) waterbodies that have recreational accessibility, compliance with the Upper Snake Rock TMDL and its components for restoration of beneficial uses and /or state water quality standards are mandatory and non-exempt.

A. IMPLEMENTATION EFFECTIVENESS MONITORING PLAN

There is no monitoring plan in effect for recreation that considers implementation effectiveness. However, the Middle Snake TAC will be looking at this issue as it develops the trend monitoring plan for tributaries.

B. MAINTAINING MANAGEMENT ACTIONS OVER TIME

Management actions by the recreation industry are based on their compliance with existing authorities for USBLM, USFS, US Parks and Recreation, and IDFG. Therefore, all recreationists will comply with all rules and regulations as implemented by these agencies on their management lands. On all 303(d) waterbodies, compliance with the Upper Snake Rock TMDL and its components for restoration of beneficial uses and /or state water quality standards are mandatory and non-exempt.

C. EVALUATION OF IMPLEMENTATION EFFECTIVENESS

To the extent practical, a review of implementation effectiveness will be provided by all agencies as it pertains to 303(d) streams and their restoration to beneficial uses and/or state water quality standards.

Part 10

IDEQ's Implementation Responsibilities

I. INTRODUCTION

The IDEQ-TFRO has certain responsibilities under implementation of both the Mid-Snake and the Upper Snake Rock TMDLs. These responsibilities are categorized in the following sections.

II. PUBLIC INVOLVEMENT

The IDEQ-TFRO will conduct its TMDL responsibilities in a manner that is "open door" to the public for technical assistance in the following areas:

1. IDEQ-TFRO will continue to participate and provide technical assistance to the Middle Snake River Watershed Advisory Group. It will continue to utilize the WAG as a public forum for all industries, interests, and concerns of the Upper Snake Rock subbasin. Any surface water quality issue within the subbasin that requires public comment will have notification provided to the WAG for their input.
2. IDEQ-TFRO will continue to participate and provide technical assistance to the Middle Snake River TAC, and utilize the TAC as a scientific public forum for all industries, interests, and concerns of the Upper Snake Rock subbasin. Any scientific related issue on surface water quality in the subbasin that requires public comment will have notification provided to the TAC for their input.
3. IDEQ-TFRO will continue to provide technical assistance to any professional industry or related interest in the Upper Snake Rock subbasin, particularly where concerns may exist on TMDL related issues or any issue that has surface water quality concerns.

III. IMPLEMENTATION TIMELINE

The Upper Snake Rock TMDL will function as an umbrella for the Billingsley Creek TMDL and the Mid-Snake TMDL. The Upper Snake Rock TMDL has the following provisions (as shown in Table 19) for IDEQ-TFRO relative to point and nonpoint source industries:

Table 19. IDEQ-TFRO provisions under the Upper Snake Rock TMDL

| YEAR | POINT SOURCE INDUSTRY | NONPOINT SOURCE INDUSTRY |
|-------------|---|--|
| | Assist in seeking funding for trend monitoring plan. | |
| Year 1 | Begin databases. Review LA and NPDES permits. | Begin databases. Review NPS efficacy monitoring. Assist in seeking funding for NPS projects. |
| Year 3 | Reallocation of loads to industries. Review LA and NPDES permits. Maintain databases & review industry plans. | Review targets & BMPs per stream. Maintain databases & review industry plans. |
| Year 5 | Review all reductions. Determine if reductions are on target. Review LA and NPDES permits. Maintain databases & review industry plans. | Evaluation & assessment of NPS reduction plans and BMPs per stream. Maintain databases & review industry plans. |

| | | |
|---|--|--|
| | Evaluate TMDL status and targets. | |
| Assuming beneficial uses have been met and water quality targets have been reached | | |
| Year 8 | Review LA and NPDES permits. Maintain databases & review industry plans. Continue with targets and reductions. | Review BMP maintenance per stream. Maintain databases & review industry plans. |
| Year 10 | Possible reallocation based on new data. Review LA & NPDES permits. Maintain databases & review industry plans. Evaluate TMDL status and targets. | Evaluation & assessment of NPS reduction plans and BMPs per stream. Maintain databases & review industry plans. |
| Assuming beneficial uses have been met and water quality targets have been reached | | |
| Year 11 | Assist in seeking funding for trend monitoring plan. Maintain reductions for additional 5 years. | |
| Year 13 | Evaluate TMDL status and targets. Maintain reductions for additional 5 years. | |
| Assuming beneficial uses have been met and water quality targets have been reached | | |
| Year 15 | Evaluate TMDL status and targets. Maintain databases and review industry plans. De-listing potential on certain segments. | |
| LA = Land application permitted facilities. NPS = Nonpoint source. | | |

IV. PROPOSED MANAGEMENT ACTIONS AND LINKAGE TO BENEFICIAL USES

IDEQ-TFRO will review and evaluate all proposed management actions and their linkage for the restoration of beneficial uses and/or state water quality standards on all 303(d) streams. In conjunction with State designated agencies, IDEQ-TFRO will review and evaluate all proposed BMPs that are utilized on streams or facilities near streams for linkages towards the restoration of beneficial uses and/or state water quality standards on all 303(d) streams.

V. COMPLIANCE ACTIONS

The Upper Snake Rock TMDL is not self-implementing. Rather, it relies upon existing authorities to ensure achievement of the goals and instream targets. Each 303(d) stream must meet its beneficial uses and/or state water quality standards (numeric or narrative) as the goal of the Clean Water Act and the State's TMDL regulatory process (IDAPA 58.01.02 and Idaho Code 39-3601 *et seq.*). To ensure that successful implementation of the Upper Snake Rock TMDL, it is important that federal and state agencies coordinate their respective enforcement processes on each particular 303(d) stream. To this end IDEQ-TFRO will continue to provide oversight and coordination between state and federal agencies on all 303(d) streams in the Upper Snake Rock subbasin for attainment of beneficial uses and/or state water quality standards. As part of this coordination:

1. **NPDES AUTHORITIES AND 401 WATER QUALITY CERTIFICATIONS**
The USEPA has primacy in Idaho for all NPDES activities. This includes administration and enforcement of NPDES permits. IDEQ provides technical assistance to USEPA on all NPDES activities. However, all NPDES permits must receive a 401 water quality certification from IDEQ that approves the NPDES permit in meeting the provisions of IDAPA 58.01.02 for meeting beneficial uses and/or state water quality standards.
2. **IDAHO'S ENVIRONMENTAL PROTECTION AND HEALTH ACT**
Idaho Code 39-101 *et seq.* provides the general authority for IDEQ to protect the general health and welfare of the people of the State of Idaho along with the protection

of the environment. The EPHA provides the authority for IDEQ to regulate activities that adversely impact the state's three natural resources: water, air, and land.

3. **NONPOINT SOURCES**

The Clean Water Act anticipates that the State of Idaho will control land-disturbing activities affecting water quality, which are not regulated by point source NPDES permits. These activities are known as nonpoint source activities. The regulations governing nonpoint source activities are set forth in IDAPA §58.01.02.350. Nonpoint source activities are required to follow approved BMPs or in the absence of approved BMPs, reasonable and knowledgeable efforts to minimize water quality impacts. The IDEQ-TFRO in consultation with other designated state agencies controls nonpoint source activities through monitoring and, if necessary, modification of BMPs or other knowledgeable and reasonable efforts.

4. **ANTIDegradation POLICY**

Idaho's antidegradation policy (IDAPA §58.01.02.051) requires that IDEQ must fully protect the existing beneficial uses of all surface waters. On high quality waters the IDEQ shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and cost-effective and reasonable BMPs for nonpoint source control.

VI. THREATENED AND ENDANGERED SPECIES PROTECTION

See the Introduction of the Upper Snake Rock Implementation Plan for a discussion about threatened and endangered species protection.

VII. IDENTIFICATION OF STAKEHOLDERS

Those directly involved with TMDLs are IDEQ and USEPA. IDEQ has oversight in the State of Idaho for all TMDL activities with technical assistance from USEPA. Designated state agencies (IDAPA §58.01.02.002.21) that coordinate with IDEQ are:

| <u>DESIGNATED AGENCY</u> | <u>ACTIVITY</u> |
|---|---|
| Idaho Department of Lands | Timber harvest |
| Idaho Department of Lands | Oil and gas exploration and development |
| Idaho Department of Lands | Mining activities |
| Idaho Soil Conservation Commission | Grazing activities |
| Idaho Soil Conservation Commission | Agricultural activities |
| Idaho Department of Transportation | Public road construction |
| Idaho Department of Agriculture | Aquaculture |
| Idaho Department of Environmental Quality | For all other activities |

Additional federal agencies that coordinate with the TMDL process by providing technical assistance for certain activities include the following:

| <u>TECHNICAL ASSISTANCE</u> | <u>ACTIVITY</u> |
|------------------------------------|-----------------------------------|
| USBLM, USFS, US Park Service, NRCS | Grazing activities |
| USBLM, USFS | Mining activities |
| USFS | Forestry, silviculture activities |
| USBLM, USFS, US Park Service | Recreation activities |
| NRCS | Agricultural activities |

NRCS

CAFO activities

Additional agencies that coordinate with the TMDL process by providing technical assistance in water quality include IDWR, IDFG, USFWS, USGS, USBOR, FERC, ACOE, and USDA/ARS.

In addition to federal and state agencies, there are organizations that also coordinate with the TMDL process by providing technical assistance in water quality or on certain activities. These organizations include the University of Idaho, University of Idaho Extension Service, Idaho State University, Boise State University, and Utah State University.

VIII. REASONABLE ASSURANCE

Under the Upper Snake Rock TMDL and the Mid-Snake TMDL, a principal objective is to allocate allowable loads among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. Since both TMDLs reasonably assure that nonpoint source control measures will achieve expected load reductions, the appropriate control mechanism used for point sources is their NPDES permit and those best management practices or actions that are described in their BMP Plan.

A. IMPLEMENTATION EFFECTIVENESS: MONITORING PLAN

IDEQ-TFRO will assist in the maintenance of a trend monitoring plan on the Middle Snake River and its tributaries relative to water quality parameters for the express purposes defined in §3.6.3 of the Upper Snake Rock TMDL. The Upper Snake Rock TMDL (§3.6.3 Trend Monitoring Plan) lays out the major objectives for usage of monitoring in conjunction with a trend monitoring plan. These objectives are as follows:

1. To evaluate best management practices effectiveness for protecting water resources.
2. To identify areas in need of further investigation.
3. To establish a reference point of overall compliance with best management practices.
4. To determine if operators are aware of authorized best management practices.
5. To identify any best management practices problems specific to a category of farms.
6. To evaluate whether any best management practices cause environmental damage.
7. To compare the effectiveness of alternative best management practices.
8. To assess if allocations are sufficient to attain beneficial uses.
9. To assess if short-term and long-term milestones are being met.
10. To describe who will carry out and finance (where appropriate) the monitoring activities.

B. MAINTAINING MANAGEMENT ACTIONS OVER TIME

Maintaining management actions over time are identified as short-term and long-term goals in the Upper Snake Rock TMDL (§3.6.1, Table 114). IDEQ-TFRO will coordinate actively with the designated land management agencies on approved BMPs for 303(d) waterbodies for restoration of beneficial uses and/or state water quality standards. IDEQ-TFRO will also coordinate actively with USEPA on NPDES activities on facilities that discharge to 303(d) waterbodies. Where beneficial uses and/or state water quality standards are not being met, IDEQ-TFRO will use its own authorities to protect for beneficial uses and/or state water quality standards on impaired waterbodies.

C. EVALUATION OF IMPLEMENTATION EFFECTIVENESS

IDEQ-TFRO will have complete oversight in the evaluation of implementation effectiveness. As part of this process, IDEQ-TFRO will utilize the technical assistance from the Mid-Snake TAC group to review and assess all trend monitoring plan results. IDEQ-TFRO has already begun this process by having the TAC review preliminarily the water quality data collected in the Year 2000. Although it is still too early to pronounce an evaluation of the data, the process has begun that supports this effort. The data is provided in this section for public review of the data.

Part 11

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