

Forest Practices
Water Quality
Management Plan

State of Idaho

STATE OF IDAHO FOREST PRACTICES WATER QUALITY MANAGEMENT PLAN



This plan fulfills the requirements of Section 208 of the Clean Water Act for forest practices in the State of Idaho, and updates the plan originally approved in 1979.

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*Cover Photo: Hunt Creek Falls, tributary to Priest Lake. Photo by Mike A. Beckwith,
Coeur d'Alene Field Office, IDHW-DOE.

**Idaho Department of Health and Welfare
Division of Environment
Water Quality Bureau
Boise, Idaho**

January 1988

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OFFICE OF THE GOVERNOR

STATE CAPITOL

BOISE

CECIL D. ANDRUS
GOVERNOR

February 11, 1988

Robie Russell
Regional Administrator
Region X, EPA
1200 Sixth Avenue
Seattle, WA 98101

Dear Robie:

I am pleased to forward to you the State of Idaho Forest Practices Water Quality Management Plan. The plan is the product of a cooperative effort by the Idaho Department of Health and Welfare, the Idaho Department of Lands, the U.S. Forest Service, and the Bureau of Land Management, and it revises the plan originally prepared in 1979. I certify that the plan is consistent with the state Water Quality Management Program as required by Sections 208 and 319 of the Clean Water Act and the Water Quality Planning and Management Regulations, 40 CFR 130, January 11, 1985.

I am confident that implementation of the plan will foster a cooperative effort among the agencies, concerned citizens, and forest industry in protecting the quality of Idaho's streams and lakes. I look forward to continued cooperation from the Environmental Protection Agency in this endeavor.

With best regards,

Sincerely,

A handwritten signature in cursive script that reads "Cecil D. Andrus".

Cecil D. Andrus
Governor

CDA:gfl

enclosures

STANLEY F. HAMILTON
DIRECTOR

November 2, 1987

BOARD OF LAND
COMMISSIONERS

CECIL D. ANDRUS
Governor

PETE T. CENARRUSA
Secretary of State

JIM JONES
Attorney General

JOE R. WILLIAMS
State Auditor

JERRY L. EVANS
Sup't of Public
Instruction

Kenneth Brooks, Director
Idaho Department of Health & Welfare
Division of Environment
Statehouse
Boise, Idaho 83720

Dear Mr. Brooks:

The Department of Lands has worked closely with your staff to revise the Idaho Forest Practices Water Quality Management Plan. The multi-agency responsibilities are well outlined so as to provide tracking of the efforts to meet our state responsibilities under the federal Clean Water Act.

As all parties to the plan work diligently to attain their respective goals for controlling nonpoint source pollution from forest practices activities, improved water quality will be realized. While some aspects of the plan call for fiscal or manpower expenditure beyond current levels, our agency supports the plan and will strive to meet its objectives.

Through the plan revision and our work with the non-point source team, a relationship has been created which I encourage and support as a means of implementing this plan.

Sincerely,

Stan Hamilton
STANLEY F. HAMILTON
Director

SFH:lr



United States
Department of
Agriculture

Forest
Service

Region 1

Federal Building
P.O. Box 7669
Missoula, MT 59807

Reply to: 2534

Date: **SEP 29 1987**

Kenneth Brooks, Director
Idaho Department of Health and Welfare
Division of Environment
Statehouse
Boise, ID 83720

Dear Mr. Brooks:

Over the past two years, we have participated in the revision of the Idaho Forest Practices Water Quality Management Plan. This Management Plan, from our perspective, is the implementation device for the Idaho Water Quality Standards. It reflects the current standards and describes our responsibility under state and federal statute for water quality protection and the goals and objectives which we will strive to meet in the future.

We believe this Management Plan has described a realistic and attainable program for controlling nonpoint source pollution from forested lands as required by Section 208 of the Clean Water Act. Our agency endorses and supports this program. We also appreciate the water quality leadership exerted by you and your staff.

We pledge the support and cooperation of this agency in the implementation of this Plan on National Forest System lands.

Sincerely,

for JAMES C. OVERBAY
Regional Forester





United States
Department of
Agriculture

Forest
Service

Intermountain
Region

324 25th Street
Ogden, UT 84401

Reply to: 2530

Date: SEP 29 1987

Mr. Kenneth Brooks, Director
Idaho Department of Health and Welfare
Division of Environment
Statehouse
Boise, ID 83720

Dear Mr. Brooks:

Over the past 2 years, we have participated in the revision of the Idaho Forest Practices Water Quality Management Plan. This Management Plan, from our perspective, is the implementation device for the Idaho Water Quality Standards. It reflects the current Standards and describes our responsibility under State and Federal statute for water quality protection and the goals and objectives which we will strive to meet in the future.

We believe this Management Plan has described a realistic and attainable program for controlling nonpoint source pollution from forested lands as required by Section 208 of the Clean Water Act. Our Agency endorses and supports this program. We also appreciate the water quality leadership exerted by you and your Staff.

We pledge the support and cooperation of this Agency in the implementation of this Plan on National Forest System lands.

Sincerely,

for J. S. TIXIER
Regional Forester



OCT 5 1987

(932)

Governor Cecil Andrus
State of Idaho
Statehouse Mail
Boise, ID 83720

Dear Governor Andrus:

We have participated in the revision of the Forest Practices Water Quality Management Plan. The Management Plan describes our existing programs, our responsibilities under state and federal statute for environmental protection, and the objectives which we will strive to meet in the future.

I believe the management plan describes a realistic and attainable program, with adequate fiscal support, for controlling pollution from forested lands as required by Section 208 of the Clean Water Act. Our agency endorses and supports this program. We look forward to establishing a memorandum of understanding regarding this plan and will work towards its implementation. Staff contacts in this office are Karl Gebhardt (334-1892) or Ervin Cowley (334-9516).

Sincerely,

DELMAR D. VAIL

Delmar D. Vail
State Director

I. INTRODUCTION

PLAN PURPOSE

The forest industry in Idaho is an important segment of the state economy which provides employment opportunities, material for construction and wood products. Likewise the land and water associated with forests represent an important part of the state's economy, and is a resource base which must be properly managed to insure their continued value and uses. The most critical concern is protection of fisheries and domestic water supplies which are dependent upon the high quality streams in the forested watersheds of Idaho. The Clean Water Act requires the State to develop a reasonable and effective program to control water pollution associated with nonpoint source activities. This plan is one of several plans which are prepared by the Division of Environment to meet the requirements of the Act.

Best management practices (BMPs) are the primary control mechanisms for nonpoint sources of pollution. This concept is the basis for the "feedback loop" recently (Feb. 1987) incorporated into the State Water Quality Standards. The feedback loop refers to the use of monitoring to determine if BMPs are effective in protecting beneficial uses of water. Changes are made to the BMPs when monitoring shows that beneficial uses such as fisheries or domestic water supplies have not been protected.

The purpose of this plan is to provide the mechanism by which the feedback loop will be implemented for forest practice activities. The plan identifies the agencies, regulations, and programs for forest practices which are needed to protect streams and lakes for beneficial uses. Goals and objectives are defined for each program area. The plan identifies the existing program, the responsible agency, any needed changes, and the projected resources needed to meet the program objectives. This plan specifies the responsibilities and authorities of the Designated Management Agencies for state, private, and federal lands. Methods for evaluating the program have also been identified.

LEGISLATIVE AUTHORITY

The Federal Clean Water Act as amended in 1972 (PL 92-500), 1977 (PL 95-217), and in 1987 (PL 92-117) was intended by Congress to provide a means to protect and restore the quality of the water resources of the nation and to maintain their beneficial uses. The Clean Water Act recognized the need for differences in control strategies for nonpoint sources compared to point sources. Point sources are pollution sources which discharge to a waterway by way of a pipe or other discrete conveyance. The Clean Water Act established a number of specific programs for the control of point sources, and many of these programs have been successful in decreasing pollution from point sources in Idaho. Nonpoint sources of pollution are those which reach the stream from a diffuse source rather than discharged from a pipe. Nonpoint source activities usually involve disturbance of the soil surface, increasing the rate of erosion. Pollution results from the transport of sediment and associated pollutants into the waterway.

The difference between point source and nonpoint source pollution for forestry is described in 40 CFR 122.27:

Silvicultural nonpoint source pollution includes nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage or road construction from which there is natural runoff.

Silvicultural point source means any discernible, confined and discrete conveyance related to rock crushing, gravel washing, log sorting or log storage facilities which are operated in connection with silvicultural operations. Log sorting and log storage means facilities whose discharges result from the holding of unprocessed wood ... in self contained bodies of water or where water is applied intentionally to the wood.

The nature of nonpoint source activities requires a different approach to pollution control than through a national regulatory program as established for point sources. For this reason an areawide planning program was authorized under Section 208 of the Clean Water Act to encourage development of State and local control strategies for nonpoint sources.

With regard to forest practices, Section 208 (b)(2)(F) requires that the plan include "a process to (i) identify ... silviculturally related sources of pollution ..., and (ii) set forth procedures and methods (including land use requirements) to control to the extent feasible such sources." The culmination of the 208 planning process is to be a water quality management plan. The primary objective of the plan is to develop the necessary programs to achieve the goal of the Clean Water Act" ... that wherever attainable, an interim goal of water quality which provides for protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved" (fishable-swimmable waters). Other requirements for water quality planning and management are detailed in the Code of Federal Regulations, Chapter 40, Parts 35 and 130, Vol. 50, No. 8, Jan. 11, 1985.

SECTION 208 PLANNING PROCESS

The Forest Practices Water Quality Management Plan was certified by Governor John V. Evans and approved by the Environmental Protection Agency (EPA) in 1979 as the 208 plan for silvicultural activities. The plan was developed under joint project administration of Idaho Department of Health and Welfare-Division of Environment (IDHW) and Idaho Department of Lands (IDL). The technical work was contracted to the College of Forestry, University of Idaho. The University organized an interdisciplinary team composed of professionals with expertise in forest resources, aquatic biology, forest economics, forest engineering, forest hydrology, forest soils, and forest policy and administration. The interdisciplinary team utilized field tours and literature reviews to determine the adequacy of the Idaho Forest Practices Act, Rules and Regulations as Best Management Practices (BMPs) for silvicultural practices. Outputs of the University were reviewed by the 208 Forest Practices Technical Advisory Committee which represented involved agencies, industries, conservation and other interest groups. Additional oversight of the planning project was provided by the Silviculture Subcommittee of the State 208 Policy Advisory Committee.

The 1979 plan identified the Idaho Forest Practices Act, Rules and Regulations as the BMPs for silviculture if changes recommended by the Forest Practices Technical Advisory Committee were incorporated into the Rules and Regulations. Idaho Department of Lands was identified as the Designated Management Agency on state and private lands. United States Forest Service (USFS) and Bureau of Land Management (BLM) were identified as the Designated Management Agency for the plan on federal lands under their jurisdiction.

The 1979 plan needs to be revised and updated based on the experiences in implementing the plan. There was no provision in the Clean Water Act to provide funding for implementation of plans developed under Section 208. States and local governments were expected to fund implementation of the plans. The State of Idaho was unable to fully implement the 1979 plan due to inadequate funding for essential programs.

WATER QUALITY/FOREST PRACTICES ISSUE

The interpretation of the Idaho Water Quality Standards in relation to forest practices, especially on National Forests, has come under scrutiny in Idaho since the management plan was completed in 1979. In 1982 the USFS petitioned IDHW to change the Water Quality Standards relating to injury of protected uses. The USFS felt that strict interpretation of this regulation would prohibit timber harvest opportunities in National Forests. The USFS's request was made in response to unfavorable comments by IDHW regarding an environmental assessment for a proposed timber sale. The comments indicated that the estimated impact of 20 percent reduction in fisheries potential for that particular proposal would constitute

a violation of the Water Quality Standards by injuring a designated protected use. Additional petitions were submitted, public hearings were held, and the Health and Welfare Board adopted a compromise position. The Water Quality Standards were changed in 1983 to clarify the role of BMPs in controlling nonpoint sources of pollution.

The Health and Welfare Board also directed establishment of an interdisciplinary Task Force to assess whether BMPs were adequate in protecting water quality. The Silviculture Nonpoint Source Task Force was composed of representatives from the Idaho Department of Health and Welfare-Division of Environment, the Idaho Department of Lands, the Idaho Department of Fish and Game, the Idaho Conservation League, the American Fisheries Society, the Idaho Forest Industries Council, and the U. S. Forest Service. The Task Force made on-site evaluations of silvicultural operations conducted on federal, state, and private lands. The evaluations included a short site visitation and visual analysis of stream quality. A report presenting a consensus of all participants on the Task Force was published in March 1985.

In summary, the Task Force found that silvicultural BMPs were adequate to protect water quality on low or moderate hazard land types. The report pointed out, however, that the potential for major water quality impacts exists on high hazard land types, or where multiple activities are occurring in a drainage, even with the use of BMPs. The Task Force also found that compliance with of the Forest Practices Act was in most cases more than adequate on National Forest system lands, but was insufficient on state and private lands to ensure water quality protection. The Task Force concluded that the 1983 revisions to the Water Quality Standards were consistent with the requirements of the Federal Clean Water Act, and recommended that no further amendments be made to the Standards at that time.

Under requirements of the National Forest Management Act the National Forests in Idaho developed comprehensive Forest Plans to describe future forest management. The majority of the draft plans were released for public review and comment during 1985. The IDHW provided comments on these documents to the National Forests in regard to meeting the intent and policy of the State Water Quality Standards. The Idaho Forest Industry Council took exception to these comments and submitted proposals to the 1986 Idaho Legislature to modify the definition of serious injury in the Idaho Water Quality Standards. This legislation (HB 711) passed both the House and the Senate, but was vetoed by Governor John V. Evans. In his veto message, the Governor directed IDHW and IDL to establish an interagency work group to resolve the interpretation of the serious injury definition in the Water Quality Standards. The interagency team recommended changes to the Water Quality Standards that were subsequently adopted by the Health and Welfare Board in February, 1987. The standards refer to a "feedback loop" (See page 47) in which monitoring provides the basis for changing the best management practices.

SUMMARY OF RESPONSIBILITIES OF IMPLEMENTING AGENCIES

Responsibilities and authorities under this plan are divided among land management agencies and the water quality agencies. Agency responsibilities are described in further detail in Chapter 3 and Appendix B and C.

IDAHO DEPARTMENT OF HEALTH AND WELFARE

The Idaho Department of Health and Welfare-Division of Environment is responsible for developing and implementing water pollution control programs under state and federal law. The Department is the designated management agency for all sections of the Clean Water Act that apply to nonpoint source pollution control. IDHW is responsible for statewide planning under Section 208 of the Clean Water Act including development of a plan for silvicultural nonpoint sources. Control of pollution from forest practices occurs through implementation of this plan, development of interagency agreements, revisions of water quality standards, and identification of best management practices.

IDAHO DEPARTMENT OF LANDS

The Idaho Department of Lands is responsible for administration of the Forest Practices Act and the Rules and Regulations pertaining to forest practices on state and private lands (See Appendix B). Idaho Department of Lands is the designated 208 management agency for state and private lands.

UNITED STATES FOREST SERVICE

The USFS is responsible for implementation of best management practices on National Forest lands and compliance with State Water Quality Standards. The USFS is the designated water quality management agency for National Forest lands pursuant to Section 208 of the Clean Water Act. Administration of the National Forests is mandated by a number of federal laws and executive orders (See Appendix C) which require protection of water quality and management of multiple uses of the forest in addition to the Clean Water Act.

UNITED STATES BUREAU OF LAND MANAGEMENT

Bureau of Land Management is a designated management agency and is, therefore, responsible for implementation of best management practices on forest lands under their jurisdiction. Administration of BLM lands is mandated by a number of federal laws and executive orders (See Appendix C) requiring protection of water quality and management of multiple uses of the public lands in addition to the Clean Water Act.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency has oversight responsibilities for sections of the Clean Water Act which have been delegated to the State (IDHW). EPA must periodically review the management plan and its updates and determine if the plan should continue to be approved.

II. WATER QUALITY IMPACTS OF FOREST PRACTICES

WATER QUALITY AND THE FOREST ECOSYSTEM

INTRODUCTION

The major tasks in 208 planning are to (1) identify the impacts associated with nonpoint sources and the extent and severity of the problem, and (2) develop and implement to the extent feasible solutions to water quality problems. Information on silvicultural impacts is available from forest research programs, published literature, and available (but limited) water quality data and stream habitat assessment data.

In Idaho there has been no comprehensive statewide assessment of the existing condition of forest streams as affected by nonpoint sources. This has in part been due to the lack of standard quantitative monitoring methods. Recently there has been an effort by National Forests to collect quantitative stream sediment data as part of the forest planning process. However, this effort has not been comprehensive enough; basic inventory data collection needs to be continued on streams within National Forests. The scarcity of basic stream data is even more evident for streams on state and private lands. There is virtually no water quality data regarding the effect of forest practices on these lands. Information on state and private lands is based on studies of the effectiveness of BMPs such as the Silvicultural Nonpoint Source Task Force Report (Bauer 1985) which did not include any water quality data.

The extent and severity of the water quality condition of streams in forested areas on a statewide basis is, therefore, unknown. This plan should initiate activities to improve the water quality data base. Information in this chapter concerns the potential impacts and cause and effect relationships that are known. The following discussion is excerpted primarily from Geppart, et al, 1984, and Megahan 1980.

TYPES OF POLLUTANTS

There are two general types of pollutants associated with forest practices. The first set includes naturally occurring water constituents that change due to the disruption of the natural ecosystem by forest practices. This includes sediment, dissolved chemicals, and water temperature. It is difficult to distinguish natural sources of these pollutants from man-caused sources and forest practice related impacts from other nonpoint sources which may occur in the watershed.

The second set of parameters involve introduced chemicals such as pesticides and fertilizers. These can be detected by conventional water quality monitoring methods. There has been very little evidence in Idaho that a problem exists with these parameters. This conclusion is based on the limited use of these practices in forest management in Idaho.

CUMULATIVE EFFECTS

A concept that is receiving a great deal of attention is the cumulative impact of forest practices (and other nonpoint sources) on water quality. Cumulative impact is defined in Council for Environmental Quality regulations:

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

(40 CFR 1508.7).

The concept of cumulative impacts is especially important in regard to the effect of deposited sediment on fish habitat. Activities distributed over time and space in a drainage may contribute more sediment than can be flushed out of the stream during high flows which results in a build-up of sediment in the stream bottom. Cumulative impacts to a stream transcend ownership boundaries; this is particularly a concern for land managers in mixed ownership watersheds (checker board lands) where no single entity has control of nonpoint source activities. Federal agencies are required to consider long-term cumulative effects of their activities in the environmental analysis process under NEPA. There is no environmental analysis requirement for state and private lands.

The South Fork of the Salmon River (SFSR) in central Idaho is a documented example of cumulative impacts caused by forest practices. Nearly all of the SFSR basin lies within the Idaho "batholith", a granitic bedrock geology which typically produces coarse-textured soils and has a high natural rate of erosion. Historically the SFSR provided important spawning grounds for summer chinook salmon and steelhead. An extensive network of roads was built in the drainage to access mining claims and to harvest timber (Road building practices used prior to 1965 in the SFSR basin would not be considered BMPs today.). Disastrous storms in 1964 and 1965 resulted in widespread road failure and severe sedimentation. Fish habitat in 1966 reached an estimated low level of 20 percent of natural potential. A moratorium on activities was initiated in 1965. The moratorium was lifted in 1977 with adoption of the SFSR Unit Plan. The moratorium together with mitigative measures have allowed the SFSR to begin the recovery process. However, it is believed that sediment levels have stabilized below natural potential (at approximately 55 percent in 1985) and are no longer improving (Payette N.F. 1985).

FOREST ECOSYSTEM

Impacts on beneficial uses of water arise from the interaction of man's activities with natural features and processes of the forest ecosystem. These impacts are rarely a single activity-response relationship. The interactions and processes are complex and the relation between cause and effect is not easy to identify or quantify. Components of the forest ecosystem which are important to the discussion of water quality are briefly described below.

Forests as ecological systems are composed of living organisms (flora and fauna) interacting with their environment (air, land surface, water). Watershed boundaries provide logical units for consideration of management effects on water quality. Watersheds encompass the components of the forest ecosystem which influence stream quality. Management of water quality in a forest must consider all activities in a watershed - forest practices and other nonpoint sources in combination with natural processes.

Soils and parent geology are the foundation of the forest ecosystem. Soil properties which affect erosion processes in a watershed are of primary consideration. Erosion involves the detachment and transport of soil particles from place to place on the land surface. Running water is the principal erosion force in forested watersheds. In timberlands of the Pacific Northwest, sheetwash erosion, soil creep, mass-wasting, and debris flows occur in response to long-term weathering of rock and soil, the availability of water, the presence of topographic relief, and biological activity. Erosion processes are active in different areas and at different rates, depending on such factors as the mechanical strength of materials, climatic conditions (especially storms), local geology, and vegetative cover.

The land surface and associated forest cover act as the collection system for precipitation. Forest practices affect both the quantity and quality of water. Precipitation reaching the forest floor contributes first to surface storage, that is water in the forest litter, ponded in soil depressions, or held in the snowpack. It then infiltrates the soil or runs off as overland flow. In the undisturbed watershed overland flow is minimal due to the vegetative cover. Water infiltrates, flows laterally, and eventually surfaces as streamflow or percolates deep into underlying formations to recharge groundwater.

Water retained as soil moisture enters the atmosphere through evapotranspiration. It is estimated that 60-80 percent of annual evapotranspiration in the forest is due to transpiration from plant life. The water

not evaporated, transpired, or retained by the soil is the forest's water yield. It includes both surface runoff as streamflow and recharge to groundwater aquifers.

Water quality variables of importance include stream temperature, dissolved oxygen, dissolved ionic components, and suspended and bedload sediment. Stream temperature is controlled by the exposure of the stream to direct solar radiation and the temperature of inflowing tributary or groundwater. Stream temperature may be affected by forest practices which remove shade from streamside areas or alter channel morphology.

The mineral constituents and pH of stream water are controlled by weathering of the parent material and forest soil. Quantities of the important elements, nitrogen and phosphorus, are usually low in forest streams. However, these constituents may increase in response to timber harvest and site preparation which causes an imbalance in the natural nutrient cycles. However, this rarely causes a water quality problem except under the most extreme land management treatments.

Dissolved oxygen is an important constituent of stream water necessary for aquatic life. Dissolved oxygen in forest streams is usually in equilibrium with the concentration of oxygen in the air. Dissolved oxygen saturation is controlled by the water temperature, colder water having the ability to contain higher concentrations, and by the barometric pressure. Dissolved oxygen can be affected by forest practices which affect the stream temperature or result in additions of organic material, such as leaves and twigs, to the stream. Oxygen is used by microorganisms as they decay the woody debris. However, in most steep gradient mountain streams reaeration occurs and reduction in dissolved oxygen is not a significant water quality problem.

The sediment load of streams (both suspended and bedload) is determined by such characteristics of the drainage basin as geology, vegetation, precipitation, topography, and land use. The sediment enters the stream system by erosional processes. To achieve stream stability, an equilibrium must be sustained between sediment entering the stream and sediment transported through the channel. A forest practice that significantly changes sediment load can upset this balance and result in physical and biological changes in the stream system. Sedimentation is, therefore, the most significant water quality problem resulting from forest practice activities.

Sediment routing and storage are particularly important components in the transport process of sediment loads through the stream system. They are critical to the quantification of short and long term impacts of forest practices on stream channels and beneficial uses. However, the storage and routing processes are highly variable and exhibit non-steady state behavior. In some instances, effects from forest practices on aquatic ecosystems through sediment may not be evident for many years.

POTENTIAL IMPACTS ON PROTECTED USES

The Clean Water Act requires the State's to develop Water Quality Standards which meet the intent of the Act in protecting and restoring the nations waters. The policy of the State's Water Quality Standards in accordance with the Clean Water Act states that "In all cases, existing beneficial uses of the waters of the State will be protected" (Section 1-2050.02.c. IDHW 1985). Appropriate beneficial uses have been designated for major stream segments in the State. These uses include agricultural water supply, domestic water supply, cold water biota, warm water biota, salmonid spawning, primary contact recreation (swimming), and secondary contact recreation (wading). Uses which may be potentially impacted by forest practices include cold water biota, salmonid spawning, and domestic water supply. Protection of lakes from eutrophication has been highlighted by the public as an important consideration for forested lands in northern Idaho.

FISHERIES

The term cold water biota as a beneficial use refers both to vertebrate as well as the invertebrate animals which occur in water. For practical purposes, cold water biota generally refers to salmonid species of fish

(trout, salmon, and whitefish) since protection of these species and their food chain will provide protection for other cold water species. Salmonid spawning is identified as a separate use in the Water Quality Standards to provide more restrictive requirements of temperature and dissolved oxygen for the sensitive egg and fry life stage.

Salmonid species of fish are the beneficial use most sensitive to perturbations of the stream ecosystem, and therefore consideration of water quality in forested watersheds generally becomes a question of fisheries habitat protection.

Forest practices have the potential to affect salmonid habitat in a number of ways. The building and maintenance of roads increases the rate of surface erosion and the potential for mass failure which contributes to stream sediment loads. Timber harvest activities may increase surface erosion and may trigger debris avalanches. Operations within the riparian habitat may impact stream cover, channel stability, and reduce shade to streams. The resulting water quality impacts may include increased turbidity, deposited sediment in spawning and rearing habitat, increases in water temperature, and decreases in dissolved oxygen.

Salmonids spawn in stream habitats where deposits of gravel or cobble provide spawning material of the appropriate size. Nests (redds) are built by females by depositing eggs in a hollowed out area and covering the eggs with the stream bottom material. Deposited sediment decreases fry emergence from the redd by inhibiting the flow of water through the spawning material. This reduces the concentrations of oxygen to the incubating eggs and prevents removal of metabolic waste. The fine sediment also creates a physical barrier which traps the fry and prevents emergence.

An equally sensitive life stage is the young fingerlings. Depending on the species, fingerlings utilize the spaces between cobble and boulders to overwinter. Fish swim into these spaces and reduce their metabolism during the cold winter months. Deposited sediment fills the spaces between the rocks which physically reduces or eliminates the habitat available for overwintering.

The qualitative relationship between deposited sediment and salmonid habitat has long been recognized. However, the relationship is not easily quantified. Research is focusing on developing standard methods of measuring deposited sediment and on the relationship between deposited sediment levels (percent fines) and fish fry survival. The effect of deposited sediment on fish density, that is, the total number of fish in an given area, is also being quantified.

Removal of riparian vegetation during timber harvest may increase water temperature in proportion to the amount of increased sunlight which reaches the stream. However, the overstory timber can be removed if an understory of riparian vegetation, such as willow and alders, remains. An increase in stream temperature may cause lethal or sublethal effects on salmonid species which are adapted to cold water streams. In some cases, increasing sunlight to the stream may have a beneficial effect by stimulating an increase in stream productivity.

Salmonids have evolved in cold water streams with naturally high dissolved oxygen levels. Dissolved oxygen concentrations may decrease in streams following timber harvest operations due to the increase in organic material which uses oxygen during decay, and due to increasing temperatures which decrease the amount of oxygen the water may physically hold.

Cold water biota may also be affected by the use of chemicals in forest operations. Herbicides and pesticides are often applied by aerial methods. These chemicals may get into the stream via drift during application or via overland runoff. Herbicides and pesticides may have direct lethal effects or sublethal effects on reproduction and growth.

DOMESTIC WATER SUPPLY

Surface water from forest streams is an important source of domestic water. There are 60 community (town or subdivision) water supplies, 80 noncommunity water supplies, and thousands of individual private homes which draw their drinking water from surface waters, primarily forested watersheds, in north Idaho

(pers. com. Richard Rogers, IDHW 1986). Forest practices may affect domestic water supply by causing excessive turbidity. Highly turbid water increases the cost of filtration and interferes with chemical disinfection. Deposited sediment may fill up the intake reservoir or decrease the flow of water to infiltration galleries. Use of pesticides or herbicides in silvicultural operations may introduce harmful chemicals into the water supply if not properly applied.

Timber harvest may also have a positive effect on a domestic water supply if the community has a need to increase their water supply. Timber harvest can increase the base flow rate in a watershed by decreasing the amount of water lost to transpiration.

LAKE PROTECTION

Lakes are an important feature of Idaho which add to the quality of life and to the economic stability of the State. The public has identified lake protection as a high priority for water quality programs particularly in northern Idaho. Forest practices may affect lake quality in two ways, by the effect on fish production in tributary streams or by contributing to eutrophication. Most salmonid species in lakes run up tributaries to spawn, so the impacts discussed above under fisheries applies equally to lake protection.

Eutrophication is the process of accelerated lake aging caused by an excessive input of nutrients. Algal growth in lakes is limited primarily by the major nutrients, nitrogen and phosphorus. Control of lake quality usually centers on reducing the man-caused sources of these nutrients. In northern Idaho lakes the major sources of nutrients are septic systems from lakeside homes, and nonpoint sources from agricultural and silvicultural lands within the lake watershed.

Streams which drain undisturbed forest watersheds are low in nutrients. Studies have shown that nitrogen and phosphorus may increase in streams following clearcutting and slashburning. Clearcutting stops the uptake of nutrients in vegetation, converts the living nonmerchantable tree tissue to slash, and often increases soil erosion (Fredriksen 1972). Slash burning or broadcast burning results in a nutrient rich ash. Nutrients can be leached from the ash as well as transported in particulate form by surface erosion. Other studies have indicated that nutrient enrichment as a result of harvest operations is not a problem (Sopper 1975; Snyder et al. 1975). Therefore, the relationship between forest management and lake quality does not appear to be well understood at this time. Research is needed in Idaho to determine the level of activity in a forest which is compatible with lake protection.

POTENTIAL SOURCES OF NONPOINT SOURCE POLLUTION FROM FORESTRY OPERATIONS

ROADS

Roads are a primary source of sediment from forested watersheds. Megahan (1972) stated that "roads create a disproportionate share of the problem, probably greater than 90 percent in most instances." The magnitude of sediment contributions from roads will vary greatly, depending on the soil type, geology, topography and climate characterizing the particular site. Roads on gentle to moderate slopes and stable topography have a low potential for contributing sediment when properly constructed and maintained. However, roads located adjacent to streams, on steep slopes, and/or unstable topography have a high potential to produce sediment for a long period of time if not properly planned, constructed, and maintained.

Sources of sediment from forest roads are 1) direct movement of soil during construction and maintenance, 2) surface erosion, and 3) mass erosion. If the road is located so that construction activities cause direct movement of soil into stream channels, then it is likely that future maintenance activities will also contribute sediment, especially if the road encroaches directly upon the stream.

Surface erosion results from raindrop impact on exposed soils and sheet, rill and gully erosion of unprotected cuts and fills and is influenced by rainfall/snowmelt characteristics, soil characteristics, topography, and plant and litter cover (Davis 1976; Swanston 1976). Mass wasting related to roads

includes fill and backslope failures, slumps, earthflows, landslides, mudslides, and rockslides. Surface and mass erosion from roads are related to one or more of the following: removal of protective cover, destruction of soil structure and fertility, increases in slope gradients, decreases in infiltration capacities, interception of subsurface flow, decreases in shear strength, increases in shear stress, and concentration of generated and intercepted surface water (Megahan 1977). Other factors which may influence erosion and sediment include reduced rooting strength and evapotranspiration and alteration of snowmelt hydrology and the surface drainage network (Gray and Megahan 1981).

The reported magnitude of sediment contributions from roads varies greatly. After construction of 1.7 miles of road on a 250-acre watershed in Oregon, the first rain storm produced suspended sediment concentrations about 250 times the concentration in an undisturbed watershed. During the following 2 years concentrations remained about twice as high as normal (Fredriksen 1965). An evaluation of sediment contributions from surface erosion on jammer roads in the Idaho batholith revealed a 1560-fold increase in sediment production during the year following construction, and a 50-fold increase 3 years later. Approximately 30 percent of the total road erosion was due to surface erosion and 70 percent to mass erosion (Megahan and Kidd 1972).

The problem of road erosion is also related to the density of the road network. Careful planning can help minimize the road density. For example, an unplanned road system constructed by the logger at the Fernow Experimental Forest in Colorado occupied 4.8 to 7.0 percent of the area, while a well planned road system on similar topography only occupied 2.5 to 4.6 percent (Mitchell and Trimble 1959). In addition to careful planning, the harvesting system employed largely governs the required road density. Jammer logging may expose 25 to 30 percent of the area as roads while longer cable systems such as a skyline setup may only expose 2 percent of the area (Rice et al. 1972).

Surface erosion is greatly accelerated during and shortly after road construction. Megahan and Kidd (1972) found that about 84 percent of the total sediment production for a 6-year period was produced during the first year after construction. Once the exposed soil revegetates or becomes armoured, surface erosion declines rapidly. Concurrent erosion control during construction with immediate stabilization of exposed soils are needed to minimize surface erosion and sediment contributions.

Mass erosion of roads is usually limited to very steep or unstable slopes. The magnitude of mass erosion does not immediately decrease with time. Megahan (1976) indicates that steep slopes, relatively shallow soil, and rapid, large volumes of water are generally required for mass wasting to occur. However in some situations, prolonged snowmelt and low intensity rainfall events can also contribute to mass wasting. Careful route selection is required to avoid potential problem areas.

Sediment contributions from forest roads can be minimized through proper planning, route selection, design, specifications, construction practices, maintenance and stabilization measures. To achieve the goals for water quality set forth by the Clean Water Act there is a need for much greater attention being given to soil and geologic characteristics, avoidance of high hazard areas, improved engineering surveys, improved road design and improved construction methods (Stone 1973). Proper location of roads relative to streams is also essential. However, a strong preventive approach is not always free of failure, and supplemental corrective measures are also required to minimize sedimentation from roads (U.S. EPA 1975). Megahan (1977) has developed guidelines for reducing erosional impacts of roads in Idaho.

HARVESTING

Methods used for the movement of logs from the stump (point of felling) to a landing (point of concentration) can be classified as one of three major types: tractor, cable and aerial. Animal skidding is a fourth, but minor type. Tractor skidding is accomplished with either crawler or wheel type units, both of which are frequently equipped with auxiliary devices for reducing the extent of contact between log and ground. Cable logging, of which there are many forms, is a yarding system employing winches in a fixed position. Aerial logging, a recent development in the logging industry, is accomplished with heavy-duty and medium-duty helicopters (U.S. EPA 1976). On occasion balloons may be used for aerial logging (Hartson 1978).

Timber harvesting can affect water quality in several ways--suspended sediment concentration, bed load, stream temperature, concentration of dissolved oxygen, and nutrient enrichment (Brown et al. 1976). Timber harvesting can increase sediment in streams by increasing surface erosion rates and increasing the risk of mass soil movement (Davis 1976). Site disturbance can reduce infiltration rates and, hence, the quantity of overland runoff and related surface erosion.

Site disturbance will vary greatly with the type of skidding or yarding system. Crawler tractors generally cause the greatest amount of site disturbance, followed closely by wheeled skidders, but on some sites use of wheeled skidders can result in more compaction than use of crawler tractors (Bell et al. 1974; Davis 1976). One method of decreasing the amount of soil disturbed by crawler tractors or wheeled skidders is through careful layout of skid trails (Rothwell 1971). Planning for skidroad location and number can greatly decrease the impact of tractor logging. Cable logging systems will result in less disturbance to a site, because one end of the log is usually suspended during transport and heavy machinery is restricted to road surfaces. Cable systems can be ranked in order of decreasing soil disturbance as follows: single drum jammer, high-lead cable, skyline, and balloon (Stone 1973; Brown et al. 1976, Davis 1976). Helicopters and balloons will likely result in minimum site disturbance, but both are costly and subject to operational constraints. However, when compared to the costs of conventional logging systems and associated facilities, the cost of aerial logging systems may be competitive, especially when considering the reduced impact of aerial systems on the watershed.

Mass soil movement is generally related to road construction activity, but also can be influenced by tree removal. It is generally thought that decay of tree roots and the resulting reduction in a soil's shear strength contribute to mass soil movement on high hazard sites (Burroughs et al. 1977; Davis 1976). Control of this hazard relates to recognition of the failure potential of an area and regulation of both the yarding system and silvicultural prescription (Brown et al. 1976; Rothwell 1971).

One of the best methods of controlling the entry of sediment into streams is through the use of buffer strips (Bell 1974; Brown 1976). Buffer strips have also been shown to be effective in reducing the entry of logging debris into streams and in controlling stream temperature.

Water temperature is important to water quality since it controls many of the biological processes that affect fish and other aquatic organisms (Brown 1976). Use of buffer strips to control stream shading, and therefore stream temperature, does not preclude controlled harvest within the buffer strips. Temperature control is more a function of canopy density than of timber volume. The optimum width of a buffer strip will vary with width of the stream, topography, and the condition of the streamside stand.

The logging slash produced during a timber harvest operation can degrade water quality through its entry into streams. Large quantities of residue can be generated by clear cutting, particularly of old growth stands (U.S. EPA 1976). Entry of small logging residue into a stream can result in a decrease in dissolved oxygen concentrations in the water, thus affecting fish production (Ponce 1974). Large woody debris has little effect on dissolved oxygen but can affect stream channel stability and cause blockage of streams and drainage structures (Swanson and Lienkaemper 1978). Accumulation of logging debris can increase potential for debris jams and avalanches (Swanston 1976). The best control over this hazard comes through careful layout of logging operations, use of buffer strips, and regulation of the direction of tree falling. The impact of residue entry into streams can be reduced by prompt removal of the material. It must also be recognized that large woody debris is beneficial to streams under natural conditions. Logs and root masses provide stream diversity for fisheries habitat and storage areas for bedload sediment. In some cases introducing large woody debris into streams during timber harvesting will improve fisheries habitat; however, this decision must be made by experienced fishery biologists.

The method of slash treatment or disposal can also affect water quality. Burning residue at a point of water concentration such as a draw could result in increased erosion. Burning can also cause a reduction in soil infiltration rates (Davis 1976). Control of these potential problems parallel those used in the control of slash in general. Windrowing of slash along the toe of fill slopes may aid in controlling erosion and subsequent sedimentation (Cook and King 1983).

The silvicultural system used in harvesting can influence both hydrology and water quality of associated streams. Silvicultural systems include shelterwood, seed tree, clear-cutting, and selection (U.S. EPA 1976). Prescription of a particular system will depend upon existing conditions and management objectives of the site to be harvested.

The hydrologic response to harvesting will vary with the silvicultural system. Removal of forest vegetation is known to increase water yield and streamflows. Various procedures and models have been developed to predict hydrologic consequences (Leaf and Alexander 1975). Clear-cutting can significantly increase water yield (Harr et al. 1975; Cline et al. 1977). Substantial increase in runoff may upset channel stability, associated streams, increasing turbidity and sediment concentrations.

REFORESTATION

Most forest regeneration efforts are directly associated with the harvest of mature timber which involves several thousand acres each year in Idaho. Prompt regeneration of these areas is dependent upon the right combination of physical and biological factors, many of which are profoundly affected by the harvest methods employed. Well planned silvicultural prescriptions help to ensure that the mature timber can be efficiently removed while producing conditions favorable to regeneration of the preferred tree species.

Successful natural or artificial regeneration often requires some site preparation to either prepare an adequate seedbed, reduce slash volumes or remove competing vegetation. Site preparation may include application of herbicides, slash burning, or mechanical scarification. These forest practices may affect the quality of adjacent streams (U.S. EPA 1976).

Mechanical scarification for site preparation is not used to the same extent as is burning in Idaho. Where employed, mechanical scarification is usually confined to gentle topography compatible with the use of crawler tractors. The piling or windrowing of slash for subsequent burning often scarifies the soil surface. Again, this is usually confined to more gentle topography. As the amount of soil disturbance increases on a site, so does the potential for surface erosion and sedimentation. However, since this activity is confined to sites with low slope gradients, it does not pose a threat to water quality when done properly.

Removal of slash by burning may cause accelerated erosion due to destruction of the litter and vegetal cover of the soil surface (Packer and Williams 1974). The degree of accelerated erosion is site specific; however, since burning is done on steep topography, the potential for sediment contributions may be high. Since burning is usually done shortly after harvesting, it is difficult to separate out the effects of burning. However, most studies addressing soil erosion subsequent to harvesting and burning have found that sedimentation rapidly declines as revegetation occurs. In Snyder's et al. (1975) study of clear-cutting and slash burning in northern Idaho, it was found that buffer strips were important in preventing sediment from reaching the streams. Those small ephemeral drainages in the harvest units, not protected by buffer strips, had significantly larger concentrations of suspended sediment.

Most studies have shown an increase in nutrients and chemicals in stream water following slash burning. However, with few exceptions, increases were not of sufficient magnitude to be detrimental to water quality. Snyder et al. (1975) reported increases in bicarbonates, sulfates, calcium and magnesium following clear-cutting and burning adjacent to streams in Idaho provided with buffer strips. Although concentrations decreased with time, they were still higher than pretreatment concentrations two years following burning. No change in nitrates was detected as a result of logging and burning in this study.

CHEMICALS

For some years pesticides (herbicides, insecticides, etc.) and more recently, fertilizers and fire retardants have become acceptable silvicultural tools, with appreciable benefits from the standpoint of forest management. Use of such products may create hazards to water quality which override the positive aspects of their use (Norris and Moore 1976). Pesticides and fertilizers of sufficient concentration may have toxic effects on stream biota and impair downstream uses. Fertilizers may also contribute to eutrophication of lakes and reservoirs.

The fact that silvicultural chemicals are often aerially applied may compound the difficulty of water quality protection. However, at least two features regarding the use of various chemicals in forest management make it unlikely that many specific watercourses will receive permanent or even relatively long term damage. First, in contrast to agricultural usage, these chemicals are applied to only a very small fraction of all our forest land in any one year. Second, also in contrast to agriculture, the same piece of forest land may never receive more than one application of a specific product over a long time span.

To say that serious damage from the use of chemicals is unlikely is not to say that there are no dangers in their use or that precautions should not be taken. Problems can develop if the chemical application is not well planned and executed (Norris 1978).

Experience shows that in many locations water quality is affected by use of chemicals applied to forest land, primarily because of direct application of a particular material to the open water (Moore 1974). Because of the nature of most forest soils and the micro relief of the terrain, little movement into watercourses of chemicals deposited on land surfaces usually occurs. If the chemicals do enter water, resulting concentrations are well below that considered toxic to aquatic life (Meehan et al. 1975) or unacceptable for public water supplies (Moore 1974). Direct application to water occurs if no buffer strips are provided, material is applied when wind conditions were not satisfactory, or because of pilot error in over-running buffer strips.

Difficulties arise in deciding just how small a stream shall require a buffer strip (or if an intermittent stream shall require a buffer strip). If every draw that in some part of the year may carry water requires a buffer strip, this will make it almost impossible to carry out aerial applications of chemicals. Moore recommends that buffer strips be maintained along main streams and larger tributaries (Moore 1974).

As a result of public concern relative to application of herbicides containing dioxin and TCDD a symposium on use of herbicides in forestry was held in 1978 (U.S. Dept. of Ag. 1978). Participants discussed various issues relative to herbicide applications. Subsequent to the symposium the Forest Service issued a revised policy on pesticide use management.

Enforcement of most regulations regarding use of chemicals and fertilizers presents problems. Unless an inspector were on the site during the operation, how would it be known that a spill occurred which was not cleaned up? Who is going to check to see if chemicals are contaminating streams? And by what methods? Because of these complications it is important that the operator be solely responsible for protection of the environment during chemical application. This is accomplished through the licensing requirements of the Idaho Pesticide Rules which are cross referenced in the IFPA.

MONITORING AND RESEARCH NEEDS

The most important environmental issue relating to forest practices in Idaho is the effect of sedimentation on salmonid fisheries. To continue progress on this issue there are a number of information needs that should be addressed. These can be divided into four categories:

1. Quantifying the effect of sediment on fish survival in spawning and rearing habitat for the purpose of developing sediment criteria.
2. Developing a reliable field method for evaluating the impact of stream sedimentation on fish habitat.
3. Improving the predictive tools to determine the effect of a planned forest activity on the quality of salmonid habitat.
4. Compiling land systems information in forested lands which can be used as the basis for developing regional or geographic management practices.

FISH EFFECTS

Recent research has shown that the relationship between fish habitat and sediment can be quantified. Research has focused on the effect of sediment on spawning habitat. Fish eggs are placed in experimental stream channels with varying mixtures of percent fine sediment. Curves have been developed for several trout and salmon species which show the relationship between embryo survival and percentage of fine sediment (Tappel and Bjornn, 1983). The threshold level of sediment that the fish can tolerate could be derived from this type of research. This would give land management and regulatory agencies criteria for sediment, similar to other pollutants, by which progress toward meeting water quality goals can be measured. Research needs to continue on these relationships to establish the validity and reliability of the test procedure and the applicability of the results to the field situation.

Research has also focused on the effect of sediment on salmonid summer rearing and overwintering habitat. Fishery Scientists have measured the degree to which substrate is embedded by fine sediment and related this to the number of fish (fish density) which can occupy the habitat (Klamt 1976, Kelley and Dettman 1980). This work has shown that a dramatic decline in fish numbers occurs after a certain cobble embeddedness is reached. This relationship gives the land management and regulatory agency a potentially valuable tool by which to gauge the effect of forest practices. Work needs to continue on this topic to strengthen these relationships and to determine under which stream conditions these methods are applicable.

MONITORING METHODS

There are a number of methods used to monitor the relation between forest practices, sediment, and fish impacts. Methods that are in use include stream flow, sediment yield, channel geometry, channel structure, channel gradient, stream bank erosion, stream channel stability rating, particle size distribution of spawning gravels by core sampling, cobble embeddedness, fish populations, and inter-gravel permeability. Most of these methods are described in Platts et al, 1983. The selection of methods depends on the objectives of the monitoring program. For assessing the impact of sediment on fisheries, methods which directly measure deposited sediment in fish habitat are preferred.

Standard measurement techniques have not been agreed on by the scientific community. This is an important first step before more progress on the issue can be made. Levinski 1986, compared the various techniques and made recommendations based on assessment of spawning habitat and summer and winter rearing habitat. For evaluation of spawning habitat the use of core sampling appears to have advantages over other methods. This method can produce data of high precision and can be used to determine potential embryo survival. The drawbacks are that this method is time consuming and equipment intensive. Cobble embeddedness shows promise as a technique to evaluate the quality of summer and winter rearing habitat. The advantages of this method are that it is fairly rapid and can be used in remote sites. There is considerable debate regarding how well this method accounts for natural variability within the stream system and within a specific stream reach. These methods need to be further developed and standardized.

In addition to in-stream monitoring methods there is a need to improve techniques used to assess BMP effectiveness upslope from the stream. On-slope monitoring is used to address the selection, implementation, and effectiveness of BMPs at the site of the management activity. On-site reviews and inspections by interdisciplinary teams, state administrators, woodland foresters, or specialists are the primary means to evaluate BMPs. These reviews can be formal or informal, are generally qualitative, and are conducted routinely. Physical measurements such as hillslope or channel cross sections, sediment traps, surveys of continuous sediment paths and sediment particle tracer movements, and yearly photographs may also be obtained to supplement these project reviews. These reviews and inspections seek answers to: Were the appropriate BMPs selected and included in the project? Were the BMPs implemented in the sediment contributing areas? Are the BMPs technically sound and appropriate? Are there better practices that should be implemented which are technically sound and economically feasible? Were the BMPs applied in total or only partially employed? Were personnel, equipment, funds, or training adequate for BMP implementation? Are the BMPs effectively protecting water quality and beneficial uses?

PREDICTIVE TOOLS

As described in Appendix C federal agencies are required by the National Environmental Policy Act to evaluate the environmental impact of planned forest practice activities. Many of the National Forests in Idaho use some form of two interrelated models developed by the Northern (R1) and Intermountain Regions (R4). The Guide for Predicting Sediment Yields From Forested Watersheds (Cline et al. 1981) estimates the sediment yield in response to various management activities which may include roading, logging, and fire. The second model, The Guide for Predicting Salmonid Response to Sediment Yields in Idaho Batholith Watersheds (Stowell et al. 1983) uses the sediment yield predicted from the first model to predict the potential effect on fish. These two models are used as a tool by the interdisciplinary team to evaluate alternatives on a timber sale environmental assessment and alternatives in draft National Forest plans.

The models need to be modified to fit the different conditions on the National Forests in Idaho. The models were developed for the Idaho Batholith, but can be adapted for other areas. This would require additional research to develop and validate coefficients for geologic erosion, mass erosion, land unit slope, and sediment delivery in the sediment prediction model. Sediment routing, sediment deposition processes, and effects on fishery habitat in the current models are considered a major weakness. Improvements in this area will also require additional research efforts.

LAND SYSTEM INVENTORY

The proposal has often been made that management practices should be based on land capability. There are obvious differences in erosion potential across the state, e.g., the highly erosive, decomposed granite of the Idaho batholith is compared to the resistant soils of the basalt formations. The level of effort and cost required to control erosion is much greater in one geology than in the other. However, translating this concept into a usable system in practice is a complex problem.

The Silvicultural Nonpoint Source Task Force used a simple classification system to group lands by land type hazard based on geology and slope (Table II-1). This provided a basis for making statements regarding the relative risk to water quality based on land types.

Table II-1. Risk Comparison of Land Type Hazard Groups.

LAND TYPE HAZARD			
SLOPE	GEOLOGIC TYPES		
	I HARD METAMORPHIC, GLACIAL TILL, HARD SEDIMENTS, AND BASALT.	II SOFT METAMORPHIC SOFT SEDIMENTS PYROCLASTICS, AND HARD GRANITICS.	III GLACIAL OUTWASH DECOMPOSED (LOW CLAY CONTENT) GRANITICS.
<45%	L	L	L
45-60%	L	M	M
60-75%	M	M	H
>75%	H	H	H

L = Low, M = Moderate, H = High

Bailey et al. (1978) reviewed various approaches to land and resource classification that have been developed. Examples of classification systems include soil classification and mapping, habitat types, forest cover-type classifications, and ecological regions. Cline (1981) pointed out the importance of survey objectives in land type mapping. Mapping efforts vary by scale and objective. Field procedures for land type mapping used by the Forest Service are not much different than those used in standard soil surveys conducted by the Soil Conservation Service (SCS); however, the approach to map unit design and presentation of map units to the user differ resulting in different maps. Swanston (1981) identified six environmental qualities that could be used to index the watershed in terms of relative hazard from mass soil movement. This includes landform features, soil characteristics, bedrock lithology and structure, vegetative cover, hydrological characteristics of the site, and climate.

System inventories have been completed on many of the National Forest lands. There are some forests that have data reduction work left to do to complete the systems inventory. Mapping is under way in the Panhandle N. F. and should be completed by 1989. Soil surveys in the Panhandle N. F. area have been coordinated with the SCS on mixed ownership lands, so this effort will result in information for state and private lands as well as federal lands. Soil surveys have been completed by SCS in many counties throughout the state. Most of the basic data collection has, therefore, been completed in many forested regions of the state. However, SCS interprets soil data for use as cropland, and therefore much of their published soils information is not usable in mapping hazards on forest land. To identify hazard types from the SCS data will require a concerted effort by soil scientists with forestry experience to make an interpretation of the soil characteristics.

In summary, there is a considerable body of data on federal, state and private land that could be used to develop statewide land capability classification. The classification could then be used as the basis for determining different BMPs depending on soil and geology. However, as pointed out above it will be a major task requiring considerable resources to make this concept a reality.

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III. IMPLEMENTATION ARRANGEMENTS

DESIGNATION OF MANAGEMENT AGENCIES

To accomplish the goals of the water quality management plan it is important to make clear assignment of the responsibilities and authorities of the designated management agencies. Management agencies derive their authority primarily from their enabling legislation and subsequent orders from the executive branch of state or federal government. In addition to these sources, additional responsibilities and authorities are delineated as a part of this management plan which is based on Section 208 of the Clean Water Act. These responsibilities and authorities become binding to the designated management agency through certification of the management plan by the Governor of Idaho and its approval by the Environmental Protection Agency.

Four agencies are specifically identified as designated management agencies - Idaho Department of Health and Welfare-Division of Environment; Idaho Department of Lands; U. S. Department of Agriculture-Forest Service; and the U. S. Department of the Interior - Bureau of Land Management. Other agencies have responsibilities and authorities relating to forest practices but are not specifically identified as management agencies.

IDAHO DEPARTMENT OF HEALTH AND WELFARE, DIVISION OF ENVIRONMENT (IDHW-DOE)

Authority

Environmental Protection and Health Act

The Division of Environment's primary authority for controlling nonpoint source pollution comes from the Environmental Protection and Health Act (EPHA), Idaho Code, Title 39, Chapter 1. The EPHA gives the Director of the Department broad authority to control point and nonpoint source pollution. The following section of the Act provides a summary of this authority:

Section 105 (3). "The director, under the rules, regulations, codes or standards adopted by the board, shall have the general supervision of the promotion and protection of the life, health, mental health and environment of the people of this state. The powers and duties of the director shall include but not be limited to the following:

The supervision and administration of a system to safeguard the quality of the waters of the state, including but not limited to the enforcement of standards relating to the discharge of effluent into the waters of this state and the storage, handling, and transportation of solids, liquids, and gases which may cause or contribute to water pollution."

Enforcement provisions were clarified and penalties for violations increased by amendments made to the Act in 1986. The IDHW-DOE has injunctive authority to "prevent imminent and substantial danger to the public health and environment." (Section 39-108 (8), Idaho Code).

Clean Water Act

The IDHW-DOE is delegated authority under the Clean Water Act for control of nonpoint source pollution. The Governor designated the Division of Environment as the statewide management agency for the Clean Water Act (except for Section 404, permits for dredged or fill material). EPA retains oversight authority for programs delegated to the State.

The IDHW-DOE has authority to coordinate overall monitoring and implementation of management plans developed under Section 208 of the Clean Water Act. Through the State Water Quality Standards the IDHW-DOE also has authority to approve (or disapprove) the IFPA rules and regulations as best management practices.

Under Section 303 of the Clean Water Act the State has the authority to develop water quality standards to insure protection of the beneficial uses of the waters of the state.

Responsibility

The IDHW-DOE has the responsibility to protect the public health and environment as required by EPHA and the Clean Water Act. As a designated management agency, IDHW-DOE has responsibility to coordinate the plan with the land management agencies, evaluate the effectiveness of the plan, and make recommendations for revision of management practices. IDHW-DOE also has specific responsibilities to conduct and coordinate in-stream monitoring to evaluate the effectiveness of BMPs and their implementation by the land management agencies.

Accountability

IDHW-DOE is directly accountable to the Director of Health and Welfare and to the Governor in carrying out the responsibilities of EPHA. IDHW-DOE is accountable to the EPA in meeting delegated responsibilities under the Clean Water Act.

IDAHO DEPARTMENT OF LANDS

Authority

The authority for promoting use of good practices on state and private forest lands is the Idaho Forest Practice Act, Title 38, Chapter 13, Idaho Code. The Act gives the Idaho Board of Land Commissioners the authority to adopt rules and regulations, to make repair orders, and to take enforcement action.

The policy of the Forest Practices Act is to encourage forest practices on state and private lands that maintain and enhance forest resources and their social and economic benefits. In regard to environmental protection the Board has the "authority to adopt rules designed to assure the continuous growing and harvesting of forest tree species and to protect and maintain the forest soil, air, water resources, wildlife, and aquatic habitat." (Section 38.1302 (2), Idaho Code).

IDL has authority under the Idaho Admissions Act, the State Constitution, and State Statutes to manage all resources including forests on state endowment lands. Constitutional policy is to administer these lands to "maximize revenues over time to the endowment funds for the beneficiary institutions." The Land Board has added to this statement so that Department policy now reads "maximize revenues over time to the endowment funds for the beneficiary institutions consistent with sound long-term management practices based on land capability."

Responsibility

IDL has the responsibility under this management plan to apply best management practices on state lands which will provide for protection of beneficial uses of water consistent with the Forest Practices Act. On private lands, IDL has the responsibility to ensure that the Forest Practice Rules are applied to provide for desired levels of stream protection, and to take enforcement action when needed to achieve this goal. IDL has specific responsibilities for reporting, monitoring, and program evaluation and upgrade as part of this plan. An important function of IDL is to identify for adoption by the Board of Land Commissioners revisions of the Forest Practice Rules needed to protect beneficial uses of state waters.

Accountability

IDL is accountable to the State Board of Land Commissioners in carrying out the responsibilities of the Forest Practices Act. As a Designated Management Agency IDL is accountable for meeting the requirements of the Forest Practice Water Quality Management Plan (See Chapter IV, page 39).

UNITED STATES FOREST SERVICE

Authority

The USFS has authority to manage national forest lands within the state. This authority is derived from a number of laws - The Organic Act (1897), Multiple Use Sustained-Yield Act (1960), Wilderness Act (1964), Forest and Rangeland Renewable Resources Planning Act (1974), and the National Forest Management Act (1976). As a Designated Management Agency the USFS has the authority to develop a nonpoint source control program for National Forest lands which will meet the Idaho Water Quality Standards in providing protection of beneficial uses of the waters of the state.

Responsibility

Responsibility of USFS in protecting water quality is addressed by the National Environmental Policy Act (1969), the Clean Water Act, Section 313, and Executive Order 12088 in addition to other laws, executive orders, and Department of Agriculture directives. The USFS has the responsibility under these laws to protect, maintain, and restore beneficial uses of water on lands within their jurisdiction.

As a designated management agency the USFS has the responsibility to implement a system of nonpoint source pollution control on national forest lands. Another important function is to participate in evaluations of the plan, and provide technical expertise to state agencies regarding the interaction of forest activities and water quality.

Accountability

Under federal legislation the Forest Service is accountable to the President and Congress in meeting the requirements of the legislation listed above. The USFS is accountable for meeting the requirements of the Forest Practice Water Quality Management Plan (See Chapter IV, page 40).

BUREAU OF LAND MANAGEMENT

Authority

The BLM has the authority to manage public land in Idaho. This authority is derived from a number of laws including the Federal Land Policy and Management Act of 1976, the Wilderness Act of 1967, the Taylor Grazing Act of 1934, the National Environmental Policy Act, and others. As a designated management agency, the BLM has the authority to develop a non-point source control program for public lands which will meet the Water Quality Standards in providing protection of beneficial uses of the waters of the state.

Responsibility

Responsibility of BLM in protecting water quality is addressed by the Clean Water Act of 1977 (Public Law 95-217, 33 U.S.C. 1251, et seq.), the Safe Drinking Water Act of 1974 (as amended in 1977), applicable Executive Orders (E.O. 12088) and Departmental directives, and Bureau policies and priorities relating to water quality. It is Bureau policy to protect, maintain, restore, and/or enhance the quality of water on public lands so that its utility for other dependent ecosystems, including present and/or desired human environments, will be maintained equal to or above legal water quality criteria. The water quality limits are those defined by the most stringent applicable laws and regulations.

Accountability

Under federal legislation, the BLM is accountable to the President and Congress for meeting the requirements of applicable federal water quality legislation, orders, directives, and policies. BLM is accountable for meeting the requirements of the Forest Practices Water Quality Management Plan (See Chapter IV, page 41).

ENVIRONMENTAL PROTECTION AGENCY

EPA is not a designated management agency in the Forest Practice Water Quality Management Plan, but has an important role in reviewing the success of the program. EPA has authority to review and approve the management plan based on its consistency with Section 208 of the Clean Water Act. After initial approval, EPA must provide an annual review and approval of recertification. EPA has the responsibility to assist the state with development and implementation of the plan including funding from the Clean Water Act.

EPA has other authorities under the Clean Water Act, the National Environmental Policy Act, and the Clean Air Act, Section 319 which are related to forest practice activities. EPA has the authority to review and approve, or disapprove, state water quality standards. EPA is required to promulgate standards if they disapprove state standards. EPA has the authority to comment on NEPA documents developed by the federal land management agencies. EPA is accountable to the President and Congress in fulfilling the goals of the Clean Water Act.

RESPONSIBILITIES OF OTHER AGENCIES

Idaho Fish and Game

Idaho Fish and Game has a major interest in the success of the management plan in reducing the impact of forest practices on resident and anadromous fish. IFG's role in the plan is to function as the State's technical experts on fisheries issues. This includes providing technical advice to IDHW-DOE and IDL, participating in development of water quality criteria, and participating on the statewide Forest Practice Audit Team.

Idaho Department of Water Resources

The Department of Water Resources has responsibility for administration of the Stream Channel Alteration Act. Administration of this Act needs to be closely coordinated with the land management agencies and with IDL in regard to forest practices on private lands. Administration of this law has been seriously limited by lack of field staff in the Department of Water Resources.

University of Idaho, College of Forestry, Wildlife and Range Science

The University provided expertise and analyses which were the basis for the development of the 1979 plan. The University should continue research efforts related to forest practices and water quality. Specific research needs are listed in Chapter II. The University can provide technical expertise in committees regarding monitoring, standards development, the Audit team, Forest Practice Advisory Committee, etc. Participation by the universities is encouraged to provide an unbiased and different perspective on these subjects. The University Cooperative Extension Service should participate in developing education and training efforts to assist the implementing agencies.

Soil Conservation Districts

The Soil Conservation District with technical assistance from SCS helps landowners by preparing woodland conservation plans. It is the responsibility of the Soil Conservation District to insure that these plans are based on approved best management practices. Funding under the forestry incentives program and other cost sharing programs provided by Agricultural Soil Conservation and Stabilization Service should support application of BMPs on forested lands.

STEERING COMMITTEE

Implementation of this revised Forest Practices Water Quality Management Plan will depend on the priority given to it by agency administrators and on future funding levels. An overall steering committee made up

of agency administrators will be established to facilitate plan implementation. The steering committee will review outputs of assigned technical working groups and take appropriate steps within the agencies to implement their recommendations. This procedure will facilitate a realistic implementation process to meet the objectives of the plan.

The steering committee will be comprised as follows:

IDHW-DOE - Administrator (Chairman)
IDL - Director (Also the State Forester)
USFS, Region I - Regional Forester
USFS, Region IV - Regional Forester
BLM - State Director
EPA - Idaho Operations Office Director

Other ad hoc committee members will be appointed by the Chairman to facilitate cooperation and coordination. Ad hoc members may include representatives from the timber industry, conservation groups, universities, and other state and federal agencies.

IMPLEMENTATION NEEDS

The existing situation for implementation of forest practices is shown in Appendix B for state and private lands, and Appendix C for federal lands. The current list of BMPs is shown in Appendix A. Continuing needs for implementing pollution control procedures for forest practices or for resolving concerns relating to implementation was developed based on a review of this information. These needs have been grouped into 11 action items. Also, a separate Summary of Continuing Needs was developed which lists a number of discrete recommendations which can be best addressed within the agencies.

FUNDING

Additional resources are needed to meet the objectives identified in the action items. The IFPA program, within IDL, is the core program which must be funded for the management plan to be successful. The IFPA program has been seriously underfunded since its inception. In addition, the Division of Environment does not have sufficient resources to monitor stream quality and coordinate the management plan. Both agencies need additional resources compared to current budgets to implement the feedback loop concept.

An analysis (Appendix B, page 110) of IFPA program resulted in an estimated minimum budget of \$437,000. This is to fund 12 full-time professional positions and supporting equipment. This can be compared to an estimated 7.1 FTEs (1986) of effort which is based on creative use of staff in several programs (See page 100).

In addition to the minimum budget this plan recognizes IDL's need for professional staff in engineering, hydrology, and soils. These positions could provide expertise to both the Bureau of Private Forestry and Bureau of Forest Management. Funding should be pursued for these positions after the minimum budget needs are met.

The Division of Environment currently devotes approximately 1 FTE (1986) of effort on forest practices, primarily for planning, EIS review, and program coordination. A minimum annual budget of \$145,000 is needed to monitor stream quality and coordinate the management plan. This would fund four professional positions.

ACTION ITEMS

The following action items were identified.

1. Forest Practice Notification
2. IFPA Inspection Procedures
3. IFPA Enforcement Procedures
4. Training and Education
5. Revision of Best Management Practices
6. Forest Practices Audit Team
7. Internal BMP Implementation Audits/State and Federal Land
8. Monitoring Coordination
9. Cumulative Effects in Mixed Ownership Drainages
10. Water Quality Criteria
11. Plan Evaluation Report

The first three action items - Notification, Inspection, and Enforcement - specifically address administration of the IFPA on state and private lands and do not apply to federal lands. Training and Education (#4) applies to all agencies and identifies the need for increased training of agency and industry personnel as well as general public information and education activities. Action item #5, Best Management Practices, identifies the need for regular review and revision of the IFPA Rules and Regulations.

The next three action items - Forest Practices Audit Team, Internal Auditing, and Monitoring Coordination - are different components of a system to evaluate implementation of BMPs on forested lands and evaluate progress of the management plan in protecting water quality.

Action items #9, Cumulative Effects, and #10, Water Quality Criteria, are relevant issues which need to be resolved in the upcoming years. It should be noted that the need for water quality criteria applies to all nonpoint source activities. However, it is highlighted in this plan because of the importance of an in-stream criteria to forest practice issues. The last action item, Plan Evaluation Report, will provide an annual continuing evaluation of the plan to keep agencies on track toward objectives defined in the action items.

For each action item the goal, existing situation, approach, responsibility, and performance measure is shown. The action items are written in a manner to display clearly the responsibility of the lead agency and to facilitate the annual evaluation of the management plan. The rationale for each action item is presented in the following chapters.

1. FOREST PRACTICE NOTIFICATION/STATE AND PRIVATE LANDS

GOAL/OBJECTIVE

Get all operators to file notifications of forest practices prior to commencing operations as required by IFPA. Notifications should be made two weeks prior to commencing operations so pre-operational visits can be made by forest practice advisors. Notifications will be prioritized for inspection when received based on their potential for damage to water quality.

EXISTING SITUATION

Notifications are often not filed with enough lead time to allow pre-operational visits by IDL personnel. On some operations damaging practices or violations occur in the first few days of work, before contact can be made by Forest Practice Advisors. Conventional techniques may be applied on hazardous sites resulting in forest practice violations. These situations can be avoided by pre-operational visits between the operator and the Forest Practice Advisor.

APPROACH

Increase information and education of operators to demonstrate benefits of pre-operational visits. The Idaho Forest Practices Act should be changed to require notification two weeks (15 days) prior to commencing forest operations if education activities are ineffective.

RESPONSIBILITIES

IDL

PERFORMANCE MEASURES

- Uniform assignment of priority for inspection in all IDL offices.
- An increase in the number of notices filed before operations begin.
- An increase in the percentage of pre-operational inspections performed by the Forest Practice Advisors.
- The IFPA modified to require that the notification be filed 15 days before operations begin.

Note: See page 101 for details of IFPA notification.

2. IFPA INSPECTION PROCEDURES/STATE AND PRIVATE LANDS

GOAL/OBJECTIVE

The goals for the forest practice inspection program is to make field inspections of the majority of high priority areas. High priority refers to high hazard areas, streams with sensitive beneficial uses, and areas where damaging operations have been reported. To achieve this objective more funding will need to be obtained.

EXISTING SITUATION

IDL had no specific Forest Practices Act appropriation until the 1987 legislative session. Since FY-1982, forest practices work has been done as a minor part of the service forestry appropriation. The IDL currently has six Private Forestry Specialists in the field offices. Their working title has been changed (spring 1986) from Woodland Forester to Forest Practice Advisor. They are assigned to perform forest practices work in the amount of approximately 3.2 FTEs. Fire Wardens have also been assigned part-time duties on forest practice inspections. As of July 1, 1987 a \$0.05 per acre annual assessment will be made on all private forest lands for the FPA program. Also, \$43,600 was authorized annually for the Forest Practices Coordinator.

APPROACH

The approach to increasing the scope of the inspection program is to secure sufficient funding for the program in the long term and to target existing Department resources on the FPA program as an interim measure. A minimum budget of \$437,000 is needed to support the program (See Table 2, page 111). This includes 10 full time foresters, the administrative staff, equipment, and a revolving fund. It is estimated that inspection of 710 operations (1,610 field contacts) will cover 75% of high risk sites, 30% of medium risk sites, and 10% of low risk sites (See Table 1, page 109). Inspections will be based on the priority assigned to the site when the notifications are filed. Priority is assigned to the operation based on the Forest Practice Advisors' knowledge of site conditions and beneficial uses of the stream. Other agencies (IDHW, IFG, USFS, Health Districts) and the public will be encouraged to be alert for potentially damaging operations.

RESPONSIBILITIES

The IDL is responsible for inspecting private lands operations and those on state lands.

PERFORMANCE MEASURES

The performance measure is an increase in the number of inspections in high priority areas and a decrease in the number of complaints from agencies and the public. The number of inspections by priority area, and the number of complaints received and follow-up actions taken will be summarized and reported to IDHW as part of the annual plan evaluation report (See Chapter IV, page 40).

3. IFPA ENFORCEMENT PROCEDURES/STATE AND PRIVATE LANDS

GOAL/OBJECTIVE

To take corrective action or repair damages caused by violations of the IFPA rules and regulations; to mitigate and restore damaged soil, water and forest productivity to acceptable levels provided by the laws of Idaho; and to provide an incentive to operators for meeting or exceeding compliance of the FPA rules and regulations.

EXISTING SITUATION

This program is understaffed as discussed under Inspection Procedures, page 27. However, ten years of experience in administering the FPA rules on private lands has shown that on the average about 25% of operations have one or more rules that are rated a minor unsatisfactory compliance. About 1% of the operations are rated as having a serious unsatisfactory compliance. Since there are about 2,500 operations per year, approximately 600 are expected to have one or more unsatisfactory compliances to the 75 individual IFPA rules. Approximately 25 operations (1%) are expected to have a major violation of the Forest Practice Rules.

APPROACH

All unsatisfactory inspections will be followed up until resolved. If the operator refuses to immediately change procedure or agree to a plan to repair the damage, a violation will be issued.

Since 1986, IDL's policy is to issue a notice of violation for all serious unsatisfactory ratings, even with the operator's willingness to change procedure and/or begin mitigative action. This will assure follow-through.

Violations by an operator on state lands are statutory as well as contractual violations and have direct supervision and contract bonding provisions to ensure operator change of procedure or mitigation of damage.

RESPONSIBILITIES

The IDL has the basic responsibility for enforcement of the IFPA. The IDHW has a backup role through the Water Quality Standards where water quality is involved. IFG provides technical support for enforcement actions where fisheries damage occurs.

A cooperative state agency approach has proven to be the most effective enforcement procedure in resolving significant stream damage and will be used where appropriate.

PERFORMANCE MEASURES

The performance measure for enforcement activities will be a summary of a) the number of water quality related Notices of Violation filed, b) the number corrected by the operator, c) the number submitted for legal action, and d) the outcome of legal action including the cost of repairs. The period of time for corrective action will also be tracked and reported. This information will be included in the annual plan evaluation report.

Note: See Appendix B, page 108, for description of enforcement procedures, and Chapter IV, page 40, regarding the annual report.

4. TRAINING AND EDUCATION

GOAL/OBJECTIVE

To train agency staff (IDL, USFS, BLM) involved with forest practices regarding potential impacts to water quality, applicable state and federal law, and state-of-the-art techniques in preventing water quality problems. To provide information to the operators and landowners regarding the IFPA and techniques used to prevent water quality problems. To educate the general public and other agency staff (e.g., IDHW-DOE, IFG) on the intent and procedures of the IFPA.

EXISTING SITUATION

The existing training situation varies among the agencies. IDL staff have a working knowledge of the IFPA. Annual training sessions are held in regard to technical issues. There is an ongoing need for training involving soils, geology, engineering, hydrology, and biology so staff can keep abreast of the latest developments and research findings.

The USFS offers training sessions for their specialists, for example, the annual Soil and Water workshops for hydrologists and soil scientists, and encourages their professional development. National Forests offer training sessions for their timber sale administrators which vary by forest in scope and intensity. Some National Forests are especially known for the quality of training programs for the sale administrators which directly influences the level of water quality protection evident in the field. There is a need for better communication and coordination between peers that work for state and federal management agencies regarding information gained from their experiences. USDA Forest Service research studies, such as those being conducted at Silver Creek (Boise NF), Horse Creek (Nezperce NF), and Tailholt/Circle End (Payette NF) are valuable training areas to educate federal and state agency staff, private operators and landowners, and the general public on effects of forest practices on water quality.

The BLM offers a variety of water quality training opportunities from District and state office workshops to formal training sessions.

The current information and education program for landowners, operators, and general public is limited by funding for the IFPA program. IDL personnel have made presentations on the IFPA program to operators, landowners, and civic organizations. Recently, the Department has hired a Forest Practices Coordinator to increase education activities. However, funding for this program is insufficient to reach a significant percentage of the target audience.

APPROACH

Training agency staff should involve a greater degree of exchange of information between various agencies and institutions. This can be accomplished through jointly sponsored technical workshops, university shortcourses, and short-term exchange of personnel and interagency personnel agreements. Within the Forest Service opportunities for increased exchange of ideas exist and should be stimulated by the Regional Foresters and by the Director of the Intermountain Research Station. Using existing processes, Forest Service State and Private Forestry Staff in both Regions can deliver new technology to appropriate users. Intermountain Station watershed research projects should continue to be used for training. An example of an existing opportunity is the on-going training for sale administrators on the Clearwater N. F. This can serve as a model for other forests, and personnel could be exchanged on a temporary basis to develop this program in other national forests. (See Appendix C, page 130).

The approach for information and education activities is to increase the scope of the current program in IDL rather than to establish a separate information and education program. The most qualified individuals to promote the IFPA are those people actively involved in the program or in related research and education functions. The IFPA Advisors should have primary responsibility for providing education to operators, landowners, and general public on the IFPA program. This will require an increase in the number of staff so that time can be allocated for this activity. (See Appendix B, page 110).

RESPONSIBILITIES

IDL: IDL has primary responsibility to promote information and education activities regarding the IFPA, and the responsibility to provide training for staff.

USFS: National Forests have responsibility to provide training to staff, and to share their technical expertise on forest practices and control procedures to state agency personnel.

BLM: The BLM has the responsibility to provide training on the IFPA or equivalent measures to staff.

IDHW-DOE: The Division can provide assistance to the designated management agencies on training and information and education activities in relation to water quality.

Other Agencies: IFG, EPA, and the Cooperative Extension Service can help provide staff or funding for information and education activities.

PERFORMANCE MEASURES

- Annual (at a minimum) technical training sessions held by the management agencies regarding aspects of the IFPA or BMPs.
- An increase in presentations made to operators and landowners. (IDL)
- An increase in pre-operational consultations with operators. (IDL)

A summary of these activities will be included in the annual plan evaluation report.

5. REVISION OF BEST MANAGEMENT PRACTICES

GOAL/OBJECTIVE

Revise and update the Forest Practice Act Rules and Regulations as needed to protect beneficial uses of State waters. Best management practices should be designed and implemented to maintain and protect beneficial uses.

EXISTING SITUATION

Forest Practice Rules were adopted in 1976. Major revision of the rules were made August 13, 1985 based on the recommendations of the 208 Technical Advisory Committee, Forest Practice Water Quality Management Plan, 1979. Additional needs have been identified (See Appendix A). The Forest Practice Rules specifically apply to state and private lands. Federal practices must meet or exceed these rules.

APPROACH

The method of revising the Forest Practice Rules is prescribed by the Forest Practice Act and the Administrative Procedures Act. Potential modifications to the Rules will be solicited on an annual basis from Bureau of Private Forestry Staff, the Designated Management Agencies, industry, and the public. Potential changes will be submitted to the Forest Practice Act Advisory Committee for consideration. IDL will act on the committee's recommendations according to the Administrative Procedures Act for adoption by the Board of Land Commissioners.

It is important that changes are made to the Forest Practice Rules in a timely manner. An annual process of soliciting input on the rules and submittal for change will assure that BMPs are kept current.

RESPONSIBILITIES

IDL - Lead agency, responsible for soliciting input, scheduling Committee meetings, and adopting recommendations for changes in the rules.

IDHW-DOE - Responsible for evaluating the effectiveness of BMPs in protecting water quality and making recommendations to IDL.

USFS, BLM - Responsible for providing technical expertise to IDL and IDHW regarding effectiveness of BMPs in protecting water quality.

PERFORMANCE MEASURES

- Input from agencies and industry requested annually by IDL.
- Modifications submitted to Forest Practice Act Advisory Committee for consideration on an annual basis.
- Prompt action on the Committee recommendations through the Administrative Procedures Act (i.e., legal notification and public hearings).

Note: See Appendix A for list of BMPs and modification procedure.

6. FOREST PRACTICES AUDIT TEAM

GOAL/OBJECTIVE

Conduct statewide on-site reviews to evaluate if appropriate BMPs are used by the land management agencies and if they are working as planned.

EXISTING SITUATION

An interdisciplinary Technical Review Team conducted on-site reviews in 1978 as part of the original development of the 208 plan. This information was used to make recommendations for revision of the Forest Practice Act, Rules and Regulations. The Silvicultural Nonpoint Source Task Force initiated by the Health and Welfare Board made on-site visits in 1984. Recommendations were made regarding administration of the Forest Practice Act and revision of selected FPA rules.

APPROACH

An interagency, interdisciplinary team is used to conduct on-site reviews of randomly selected forest practices on state, federal, and private lands. The assessment methods are described in Chapter IV, page 42. The steering committee will provide agency support to the audit team and will maintain oversight through review of the audit team's reports.

In addition to the statewide audit, informal, interim, field reviews will be conducted on a localized basis with National forests, IDL Supervisory Areas, and BLM Districts. These field reviews will be conducted annually and will focus on local conditions, problem areas, or specific forest practices.

RESPONSIBILITIES

IDHW-DOE - Lead agency, responsible for initiating and coordinating the audit with the other management agencies.

IDL - participate in the field audits, provide necessary information for selection of state sales and private operations, and act as liaison with the private landowners.

USFS, BLM - participate in the field audits, provide necessary information for selection of federal sales and provide technical expertise in audit procedures.

IFG - participate in the field audits, provide technical expertise on fisheries impacts.

Other participants: Representatives from industry, public interest groups, and universities, and other state and federal agencies with the desired expertise will be invited to participate as team members or as ad hoc members.

PERFORMANCE MEASURES

- The statewide forest practices Audit should be conducted every four years. This will provide adequate time for the management agencies to act on the team recommendations and allow for detectable changes in the field.
- The final report will be prepared within six months of completion of the field work and will be distributed to the steering committee, Health and Welfare Board, the Land Board, the Governor, EPA, and interested public.
- The interim reviews will be summarized as part of the annual plan evaluation report.

7. INTERNAL BMP IMPLEMENTATION AUDITS/STATE AND FEDERAL LAND

GOAL/OBJECTIVE

Conduct internal reviews of best management practices to determine if they are implemented as planned and to look for on-site indicators of BMP effectiveness.

EXISTING SITUATION

The agencies (USFS, BLM, and IDL) make post-project reviews to evaluate the effectiveness of BMPs. These on-site evaluations have generally been done informally by the sale administrator or others involved in the layout and design of the timber sale. The reviews help the individuals assess the effectiveness of a particular practice or a set of practices. The individuals generally make subjective judgements on how well the BMPs worked and use this information to make more informed judgements on future sales, but rarely document their findings in written reports.

IDL instituted internal audits of forest practices on state lands in 1986. Randomly selected operations are inspected by the Bureau of Private Forestry using at least 3 persons not involved in the forest management program (See Appendix B, page 101).

APPROACH

More on-site evaluations of BMP effectiveness are needed by the land management agencies. These should be structured and coordinated to assure that a representative sample of practices and landforms are being evaluated. To the extent practicable, the on-site evaluations need to be quantitative rather than subjective (e.g., measure ground cover rather than use an adjective rating). Further, the post project evaluation should be documented so that individuals other than those making the review can benefit. It is important that internal BMP evaluations be constructively critical rather than adversarial. They need to be looked upon as a learning experience and a process by which all agencies can expand their knowledge.

All the agencies should use an interdisciplinary approach. IDL and BLM should invite other agency staff to participate if soils, hydrology, biology and engineering staff are not available internally. Credibility of internal audits will be increased if outside agency staff (IDHW, IFG) are a part of the audit team.

The research being conducted by the Forest Service's Intermountain Research Station at Silver Creek, Horse Creek, and Tailholt/Circle End is recognized as a critical link in quantifying BMP effectiveness. These projects are closely controlled and provide quantitative results of onsite soil movement and sediment delivery to the channel system resulting from a variety of alternative BMPs.

RESPONSIBILITIES

Forest Service, BLM, and IDL will annually examine a representative sample (target 10%) of timber-related projects and prepare written BMP evaluation reports. (The 10% target is intended to include significant land-disturbing activities. It is not intended to include small sales with little soil disturbance, such as the numerous small firewood sales in some regions which have little environmental impact.) To the extent possible, findings from these evaluations are to be shared internally and with other agencies.

PERFORMANCE MEASURES

- IDL: Results of internal audits on state lands will be summarized and forwarded to IDHW-DOE.
- USFS: National Forests will initiate (or continue) post project audits by an interdisciplinary team. The results of these audits will be collated and summarized by the two regional offices and forwarded to IDHW-DOE.
- BLM: BLM will initiate internal audits and forward the information to IDHW-DOE.
- IDHW-DOE: Collate and summarize reports from management agencies for inclusion in the plan evaluation report.
- Period: Annual.

8. MONITORING COORDINATION

GOAL/OBJECTIVE

Develop a coordinated in-stream monitoring strategy to evaluate implementation and performance of forest practices in protecting water quality and beneficial uses. The primary objective is to standardize in-stream monitoring techniques. A secondary objective is to encourage cooperative monitoring programs within the same drainage by various management agencies.

EXISTING SITUATION

There has been little agreement between specialists in developing standard methodology for evaluating the effects of forest practices. With the recent efforts in developing National Forest Management Plans the need for standardized monitoring techniques has been recognized and is beginning to be addressed. Coordination between state and federal agencies has been limited to isolated monitoring projects.

There is currently very little data available on which to judge the current status of streams in forested areas. Virtually no data has been collected in state and private ownerships. The National Forests and BLM have collected data on sediment and habitat characteristics; however, various techniques have been used. Overall, the quality and quantity of information is minimal.

APPROACH

A technical working team will be initiated to develop standard monitoring techniques regarding the effects of forest practices. The team will initially address the more basic questions of monitoring objectives, monitoring location criteria, and minimum standards for data quality. The technical working group will be comprised of specialists with monitoring expertise regarding forest practices - water quality specialists, hydrologists, fishery biologists.

The technical monitoring team will report their findings and recommendations to the management steering committee. The steering committee will evaluate these recommendations and take necessary steps to follow through on the recommendations.

RESPONSIBILITIES

IDHW-DOE - Lead Agency, responsible for initiating the steering committee and technical working team and coordinating the product.

IDL - Representation on the steering committee for state and private lands.

USFS - Participate on the steering committee, provide staff specialists for the technical working group.

BLM - Participate on the steering committee, provide staff specialists for the technical working group.

IFG - Provide staff specialists for the technical working group.

PERFORMANCE MEASURES

- Technical Working Group established within 6 months of completion of this plan.
- Meetings held annually at a minimum.
- BLM, USFS: Forest or District monitoring plans completed and updated annually.
- A monitoring strategy should be developed for state and private lands by IDHW-DOE and IDL within one year of completion of this plan.

9. CUMULATIVE EFFECTS IN MIXED OWNERSHIP DRAINAGES

GOAL/OBJECTIVE

Develop a process to keep cumulative impacts on water quality and beneficial uses within acceptable limits. The initial step in this process is to develop a forum for exchanging information between landowners with mixed ownership watersheds regarding proposed forest activities.

EXISTING SITUATION

From scientific literature, newspaper articles, the 1979 Forest Practice Water Quality Management Plan, the 1985 Silvicultural Nonpoint Source Task Force Report, comments on Forest Service Plans, and other sources, cumulative watershed impacts have been recognized as a concern in Idaho. Idaho needs to develop a process to address cumulative watershed impacts from mixed ownerships.

APPROACH

A cooperative information sharing program on cumulative watershed impacts will be formulated, developed, and established by an interagency, interdisciplinary task force. This task force will be composed of representatives from IDL, IDHW-DOE, timber industry, and federal land management agencies. The types of shared information, its format and presentation, the time frames to be considered, watershed sizes to be evaluated, managerial constraints and considerations, and other details will be defined by the team. The task force will consider methods for controlling cumulative watershed impacts.

RESPONSIBILITIES

IDL - Lead agency, will provide leadership for development of the Cumulative Watershed Effects Cooperative. They will serve as a clearinghouse for the shared information, insure comparability of shared information, and take the leadership role in evaluation of the information.

IDHW-DOE - will assist IDL in cumulative watershed effects evaluation by determining instream values, establishing instream criteria to protect beneficial uses, monitoring, and providing recommendations.

IFG - will provide information on fisheries populations in identified watersheds.

The timber industry, Forest Service, BLM, and other federal agencies will provide support for the cooperative, conduct monitoring, and help evaluate shared information.

PERFORMANCE MEASURES

The task force will be established within 6 months of finalization of this document. The recommended process to address cumulative watershed impacts through a cooperative information sharing program will be developed 1 year after task force formation. The process will be implemented in a trial basis for 1 year in northern Idaho. After the 1 year, the process will be reevaluated and fine tuned prior to statewide application.

10. WATER QUALITY CRITERIA

GOAL/OBJECTIVE

Develop water quality criteria for sediment generated from forest practice activities.

EXISTING SITUATION

The Idaho Water Quality Standards and Wastewater Treatment Requirements do not include a quantitative criteria for sediment. Policy and narrative standards were revised in 1980 which stated that nonpoint sources should not seriously injure a beneficial use of water. Additional changes to the standards were proposed in November, 1986 based on the recommendations of an interagency group. The lack of a criteria for sediment is a major stumbling block for gauging the effectiveness of this management plan in protecting beneficial uses.

APPROACH

Governor John Evans directed the establishment of a nonpoint source interagency team including representatives from IDHW-DOE and IDL in April, 1986 to address the forest industry's objections to the language of the Water Quality Standards. In addition to suggesting specific changes to the standards, the interagency team identified actions which need to be addressed to implement the standards. The following actions are modified from the team's list of needs. The interagency team noted that additional funding would be needed to carry out these activities and identified a completion date of July, 1988.

1. Seek funding for criteria development.
2. Compile information on potential criteria and determine deficiencies.
3. Compile available literature on the effects of sediment. *(Note: A literature review has been completed under contract to EPA - Development of Criteria for Sediment in the Northern Rockies Ecoregion by D.W. Chapman and K.P. McLeod, 1987.*

The authors concluded that existing quantitative relationships between fish and sediment were insufficient for development of criteria and recommended research projects to improve the functional relationships.)

4. Develop criteria if warranted by the literature review.
5. Evaluate the feasibility of using criteria for forest practice activities.

RESPONSIBILITIES

IDHW-DOE - Lead agency.

EPA - Technical support.

IDL, USFS, BLM - support and review responsibility.

IFG - technical support.

Ad hoc team members should include representatives from industry, public interest groups, and other state and federal agencies. The team should encompass a broad range of disciplines to address the linkage between onsite impacts and instream effects.

PERFORMANCE MEASURES

Steps identified under Approach taken in a timely manner, with the IDHW-DOE recommendation for a sediment criteria made by July, 1988, if feasible.

11. PLAN EVALUATION REPORT

GOAL/OBJECTIVE

Evaluate the overall progress on the Forest Practice Water Quality Management Plan and report the findings to participating agencies, EPA, the Governor, and the public.

EXISTING SITUATION

Annual reports on the status and success of the management plan adopted in 1979 have not been completed. The Silvicultural Nonpoint Source Task Force (1985) report met some of this requirement, but was only a one-time effort.

APPROACH

Summarize the evaluation of performance measures of the designated management agencies (including IDHW-DOE) in meeting their goals and objectives as identified in this section, and make recommendations for any necessary improvement. (See Chapter IV, page 44.)

RESPONSIBILITY

Steering Committee

PERFORMANCE MEASURES

Frequency: Annual

Report: Report distributed to participating agencies, the Governor, and EPA.

SUMMARY OF CONTINUING NEEDS

IFPA PROGRAM

1. A cooperative agreement between IDL and the Idaho Department of Water Resources should be developed regarding stream alterations associated with forest practices (See page 103).
2. The IFPA should be changed to apply the Rules and Regulations to land conversion until such conversion is completed.
3. Amend the IFPA to recognize the land owner's liability in complying with the Act (See page 116).
4. Clarify the IFPA to require a reasonable minimum prior notification period (15 days) (See page 116).
5. A revolving account for use in making repairs by IDL needs to be established. Currently IDL may not be able to make repairs in a timely manner due to a lack of funds (See page 108).
6. Consideration should be given to amending the IFPA to require licensing and/or bonding of operators to increase compliance with the Act (See page 108 and 116).
7. Efforts should be made to secure funding for professional engineering, hydrology, and soils assistance for both private forestry and Forest Management Programs (See page 110).
8. A procedure should be developed to facilitate review of proposed state timber sales (See page 115).

RESEARCH NEEDS

1. Quantify the effect of sediment on fish survival in spawning and rearing habitat (See page 13).
2. Develop a reliable field method for evaluating the impact of stream sedimentation on fish habitat.
3. Improve the predictive tools to determine the effect of a planned forest activity on the quality of salmonid habitat.
4. Compile land systems information in forested lands which can be used as the basis for developing regional or geographic management practices.
5. Investigate the relationship between forest management and lake quality (See page 9).

IV. PROGRAM EVALUATION AND UPGRADING

INTRODUCTION

For the Forest Practices Water Quality Management plan to be effective it is important to include methods for monitoring progress toward achieving goals and taking corrective action. Program evaluation involves a variety of activities - internal BMP auditing, on-site and in-stream monitoring, independent forest practice audits, and compilation of this information into an overall report. Program upgrade is an on-going process - monitoring, evaluation, recommendations on changes to programs - and then a repetition of these steps to determine if corrective action was effective.

This continuing planning process will require a high degree of cooperation and coordination within and between agencies to be successful. Ultimately, these steps involve all personnel in the designated management agencies to some degree. The responsibility for overall coordination and management belongs to the steering committee described in Chapter III, i.e., the administrators of the designated management agencies. Administrators will need to delegate tasks to staff; however, they will need to assure that their agency responsibilities identified in the plan are met.

This chapter of the management plan outlines the components of program evaluation and upgrading which are needed to maintain certification of the plan by the Governor and approval by EPA. These components consist of:

1. Accountability of the designated management agencies.
2. Organization of the Forest Practices Audit Team to systematically review practices throughout the state. This constitutes an independent or external appraisal of the land management agencies' performance in protecting water quality.
3. Description of a process to coordinate in-stream monitoring of forest practice activities and development of applicable water quality criteria.
4. Development of an annual report which provides an overall evaluation of progress on the management plan.

ACCOUNTABILITY OF DESIGNATED MANAGEMENT AGENCIES

Designated management agencies are responsible for measuring and reporting their compliance with the Forest Practices Water Quality Management Plan. The land management agencies will perform internal audits which will be combined with results of the Forest Practices Audit Team and results of in-stream monitoring to gauge the success of the management plan. This information is analogous to the requirement for point source dischargers to monitor effluent quality and report the results to the pollution control agency.

IDAHO DEPARTMENT OF LANDS - STATE FOREST LANDS

Internal audits of state forest lands was initiated in 1986 by the Director. The internal audits are performed by the Bureau of Private Forestry using standard FPA inspection forms. The audits are used to determine compliance with the IFPA and to determine if changes are needed in procedures used in the Bureau of Forest Management.

As part of its responsibility identified in this management plan, IDL will provide a summary of the audits to IDHW-DOE, including problems found and corrective action taken.

IDAHO DEPARTMENT OF LANDS-PRIVATE LANDS

IDL is responsible for insuring the application of BMPs on privately-owned forest land in Idaho. The effectiveness of the IFPA Rules as BMPs and their administration will be accomplished through documentation by IDL Supervisory Areas as shown below. This information will be used internally to measure progress on the FPA program, and will be reported to the Steering Committee and IDHW for inclusion in the annual plan evaluation report.

Notification

1. Report the number of forest practices notifications and the type of practice indicated. Include assigned hazard priority, where possible, including those operations near Class I and II streams.
2. Review and report the number of variances from the IFPA Rules, the purpose, and the outcome.
3. On state-owned lands determine and report the number of timber sale contracts or other practices: report the acreage treated, number involving Class I or Class II streams, and miles of road built.

Compliance Inspections

1. Report the number of on-site inspections with categories in low, medium, and high hazards, and the number of inspections before, during, and after operations.
2. Report the number of complaints received regarding water quality and follow-up actions.
3. Report any problems with administration or effectiveness of specific IFPA Rules and recommend necessary modifications.

Enforcement Action

1. Report the number and type of violations issued for water quality related rules; cite specific rules where possible.
2. Report the number of water quality related Notices of Violation: a) corrected by operators, b) submitted for prosecution or legal action, and c) report outcomes, including the cost of repairs.

Change in Statute or Regulation

1. Report the changes or attempts to change the IFPA or Rules and Regulations and the results of these efforts.
2. Report the status and activities of the Forest Practices Advisory Committee and their results.

Staff Level

1. Report on the efforts to secure funding for the IFPA program.
2. Report on the staff effort devoted to the IFPA program for the past year. Include the number of FTEs for the Forest Practice Advisors as well as other staff.

NATIONAL FOREST LANDS

The Forest Service will evaluate BMP implementation, administration, and effectiveness, and determine water quality effects of forest practices on National Forest lands. This will be accomplished through internal

implementation audits, on-site and in-stream monitoring, and research programs. Reporting from the National Forests will be standardized and coordinated through the two regional offices that include Idaho.

The Forest Service will:

1. Provide an annual report on the water quality monitoring and evaluation efforts as described in Forest Plans. Disclose the monitoring results, management implications of this monitoring, any adjustments to management activities as a result of monitoring, and monitoring and evaluation efforts for the upcoming year.
2. Provide an annual list and description of the water quality related research efforts on National Forest System lands.
3. Provide any evaluations of the cost effectiveness and mitigation efficiency of new or old BMPs that are employed on National Forest System lands.
4. Report problems and concerns with BMPs that are prescribed by the IFPA Rules relating to water quality and provide recommended improvements.

BUREAU OF LAND MANAGEMENT

The BLM will evaluate BMP implementation, administration, and effectiveness, and determine water quality effects of forest practices on forest lands administered by BLM. This will be accomplished through internal implementation audits and on-site and in-stream monitoring. Reporting from District offices will be coordinated through the state office.

The BLM will:

1. Provide an annual report on the water quality monitoring and evaluation efforts. Disclose the monitoring results, management implications of this monitoring, any adjustments to management activities as a result of monitoring, and monitoring and evaluation efforts for the upcoming year.
2. Provide any evaluations of the cost effectiveness and mitigation efficiency of new or old BMPs that are employed.
3. Report problems and concerns with BMPs that are prescribed by the IFPA Rules relating to water quality and provide recommended improvements.

IDAHO DEPARTMENT OF HEALTH AND WELFARE-DIVISION OF ENVIRONMENT

Idaho Department of Health and Welfare has overall responsibility for coordination of the management plan and evaluation of progress. This responsibility is met through initiating activity on action items listed in Chapter III. This includes:

1. Initiating annual review of the management plan through meetings of the interagency steering committee, and summarizing results in an annual report.
2. Initiating and participating on technical committees for coordinated monitoring and cumulative effects in mixed ownership.
3. Initiating and chairing the Forest Practices Audit Team.
4. Initiating development of water quality criteria for sediment.
5. Coordinate activities with USFS at the National Forest level. This includes annual coordination meetings, cooperative in-stream monitoring, participation in field reviews, and review and comments on NEPA documents.

6. Coordinate activities with Bureau of Land Management.
7. Coordinate field activities with IDL at the Supervisory Area level. This includes annual review of the state timber sales plan, participation in field reviews, coordination with FPA program on site inspections, monitoring, and enforcement on private timber lands.
8. Initiate in-stream monitoring programs, as resources allow, in mixed ownership drainages.

FOREST PRACTICES AUDIT TEAM

OBJECTIVE

The purpose of the Audit Team is to provide an independent evaluation of the silvicultural control programs and make recommendations for any necessary upgrade. The Audit Team can provide only a portion of the information needed to evaluate the overall program effectiveness. Research into the effectiveness of management practices (such as rainulator experiments for specific treatments) and evaluations of in-stream monitoring are the other information components needed to upgrade the program.

The Audit Team can determine if management agencies are using the prescribed BMPs and if these practices are providing reasonable control of surface erosion and mass failure. The Audit Team can also evaluate the language of the IFPA Rules and Regulations and make recommendations for improvement. However, the connection between evaluation of the management practices and determining the effect on fisheries is much more difficult and can not be done adequately without a linkage to in-stream measurements.

APPROACH

An interdisciplinary team is used to conduct on-site evaluations of randomly selected forest practices on federal, state, and private lands. The field audits should be conducted every four years. This will provide adequate time for the management agencies to act on the team recommendations and allow for detectable changes to occur in the field as a result of the recommendations. The field audits are time consuming and expensive; a more frequent interval will require additional funding. Interim annual audits will be conducted on a local basis with National Forests, IDL Supervisory Areas, and BLM District offices. These interim field audits may be more informal and may focus on problems identified by the staff in the local area.

Since the evaluations are based on best professional judgement, the team members should have lengthy field experience in forest practices. The team should include specialists in forest hydrology, salmonid fisheries, silviculture, forest road engineering, soil science or geology, and water quality. The team members may be selected from IDL, USFS, BLM, IFG, universities, forest industry, or other state and federal agencies. Every effort should be made to prevent potential conflicts for the team member between agency loyalty and professional judgement.

The steering committee described in Chapter III will provide oversight and coordination between agencies. In addition to the designated management agencies ad hoc members should include representatives for EPA, private industry, and concerned public interest groups. The steering committee may also have representatives from the Water Quality Policy Advisory Committee and the IFPA Advisory Committee to facilitate transfer of information. The steering committee will review the Audit Team's plan of work, provide any assistance within the agencies regarding candidate sites and logistics, provide comments on the team's progress and procedures, review the team's report and facilitate getting the team's recommendations into action.

SITE SELECTION

The selection of sites will depend on the objectives defined by the Audit Team members. For example, the Audit Team and steering committee may decide to address the effect of forest practices only in high hazard land types. Sites should then be selected randomly from a list of candidate sites which meet the Audit Team's criteria.

The sample design used by the Silvicultural Nonpoint Source Task Force in 1985 is summarized below. Consideration was given to land ownership, geographic location, geologic land type, type of forest practice, and logging method. The Task Force decided on the following criteria:

1. Minimum size: The unit will include a minimum size of 10 acres treated.
2. Proximity to streams: A class I stream is within or adjacent to the unit. Adjacent means within 100 feet of the cutting unit boundary. There should be at least 500 linear feet of Class I stream in the unit.
3. A road building or timber harvest activity occurred in the unit within the last year.
4. The total sample is to include a minimum of 25 to 35 percent of the units within granitic land types.

In practice the team discovered that it was not possible to meet all of these criteria based on a prior selection of sites. A totally random selection was not feasible. The USFS supplied an overall list of candidate sites that met the criteria, however, such a list on state and private lands was not possible. In practice, USFS sites were randomly selected, then nearby state and private sites were selected that were within a practical travel route and which appeared to meet the criteria. A completely random selection would have resulted in much wasted travel time. Even with a planned itinerary it took 20 days to visit 25 sites.

ON-SITE EVALUATION PROCEDURE

The basis for the on-site reviews is the subjective evaluation of compliance with the IFPA Rules and Regulations and observation of stream impacts. The field form used by the Silvicultural NPS Task Force is shown in Appendix D. Each applicable rule was rated in the field for both compliance with the rules and water quality impact using a rating system from one to five, with one being a low rating and five being a superior rating (See page 2 of form, Appendix D).

Once at a site the Audit Team should meet with a representative of the land management agency or landowner to get an overview of the operation. On USFS sites the Timber Sale Administrator should be present, and a copy of the sale map and Environmental Assessment made available to the team. On state lands the Forester in charge of the contract should be present and have a copy of the sale map and contract requirements. The Audit Team should concentrate their examination on areas where erosion hazards are high and where sediment can be delivered to streams. This includes walking skid trails near draws or channels, walking the major streams within the sale boundary, examining stream crossings, and observing road construction and maintenance practices. Notes should be made of the type of geology, soil type, and the logging method. Streams should be examined for observable impacts to bank integrity, direct sediment delivery, and obvious cobble embeddedness.

Although the Audit Team inspections provide valuable information, the limitations of the procedure need to be remembered. Forest practice operations normally cover several seasons between the time the road access is built and site preparation is completed. A one day inspection can not adequately assess all the potential sources of sediment which may occur throughout the operation. The relation between significant storm events and the site visits can not be planned. Most surface erosion generally occurs either during the operation or within the year following the activity. Mass failure of slopes or roads, however, may not occur until many years (three to ten) after the operation. Timing of the site visit, therefore, in relation to assessing water quality impacts is not straight forward. The visual assessment of in-stream sediment impacts is extremely crude and can only detect gross differences in sediment

deposition. A major limitation in this approach is that cumulative impacts (or the hazard of) on the stream cannot be detected by a random site inspection. This is an important limitation which must be considered when the information from the Audit Team is used.

COORDINATED MONITORING

The idea of coordinating monitoring programs for forest practices between the various agencies is a concept which is very attractive but at the same time is recognized as very difficult to get into action. The emphasis is on coordination of monitoring activities, not on creating new or additional monitoring programs.

National Forests collect in-stream data to meet their management objectives, standards, and guidelines which are displayed in the National Forest management plans. National Forests in Idaho are all involved in monitoring of substrate quality to some degree. Virtually no monitoring is being done on streams on state and private lands. (BLM conducts some monitoring in mixed ownership drainages.) The Division of Environment has the responsibility to do monitoring, but has not had the resources to establish a monitoring program for forest practices to date.

As outlined in Chapter II the suggested approach to developing a coordinated monitoring program is to establish a technical working team. The technical team will be comprised of specialists with monitoring expertise in forest practices which include water quality analysts, hydrologists, and fishery biologists. The technical team will review the existing and proposed monitoring programs and make recommendations regarding assessment methods, intensity, quality assurance, reporting, etc. The steering committee will review the recommendations of the technical team and take appropriate steps to address these recommendations in agency programs, budgeting, and staffing.

Division of Environment has the responsibility for initiating the steering committee and technical team.

OVERALL PLAN EVALUATION AND PROGRAM UPGRADE

Overall evaluation of the management plan and recommendations for program upgrade will be accomplished through annual meetings of the steering committee and preparation of an annual report. Since IDHW-DOE has overall responsibility for coordination of the management plan the meetings will be chaired by the Administrator of IDHW-DOE or his designee. The basis for the annual meeting is review of progress on action items during the preceding year. Annual reports from the designated management agencies will be provided to the steering committee prior to their annual meeting.

Agenda items will include:

1. Review of progress on action items which are based on technical teams or interagency coordination. Depending on the stage of the project the steering committee will make staff assignments for committees, review committee plans and schedules, review results, or report on agency implementation of committee recommendations. This includes the Forest Practices Audit Team, coordinated in-stream monitoring, cumulative effects in mixed ownership lands, and water quality criteria development.
2. Review of performance measures and accountability requirements listed in Chapter III and the section on accountability in this chapter (page 39-42) . For example, this would include results of internal BMP audits, in-stream monitoring, research efforts, and notification, inspection, and enforcement actions for the IFPA.

IDHW-DOE will collate the reports from the designated management agencies and technical teams, summarize progress toward management plan objectives, and recommendations for action made by the steering committee into an overall progress report. The annual report will be sent to the Governor, EPA, designated management agencies, and interested public.

APPENDIX A

BEST MANAGEMENT PRACTICES

NONPOINT SOURCES AND BEST MANAGEMENT PRACTICES

Nonpoint sources of pollution are activities which cause disturbance of the soil surface; pollutants are discharged to streams or lakes through runoff from the area compared to discharge from a pipe as with point sources. Nonpoint source activities are more specifically defined for silviculture in Chapter I. Water quality problems resulting from forest practices are discussed in Chapter II.

Because of its nature nonpoint source pollution can most effectively be controlled through application of preventative or mitigative measures on a site specific basis. Such measures are termed best management practices. BMPs may be broadly defined as a practice or combination of practices which are found to be effective and practicable (technologically, economically and institutionally) as a means of preventing or reducing water pollution from nonpoint sources to a level compatible with water quality goals (Code of Federal Regulations, Title 40, Part 130).

In addition to economic and institutional factors, BMP design should consider the following technical variables:

1. The variability of characteristics on individual source areas in terms of topography, soils, geology, etc., and their effect on natural pollution hazards of the area;
2. The variability in climatic factors which influence both the detachment and transport processes;
3. The variability in the recovery time of the site as it is influenced by factors, such as climate, soil productivity and plant species; and
4. The variability in the transport behavior of different pollutants and in the reaction of the receiving waters to these pollutants.

The concept of site specific application of BMPs implies that for the entire State of Idaho there may be an infinite number of BMPs due to the above variables; but, it is not possible or practical for this water quality management plan to define all of the practices which should be applied to silvicultural activities in Idaho. It is much more desirable to identify generally acceptable practices and the procedure by which they should be applied. Then experienced and responsible persons can prescribe the practices for a particular activity and site.

The Idaho Forest Practices Act and its Rules and Regulations administered by Idaho Department of Lands demonstrate this philosophy. It is considered to be a practical means and authority by which BMPs can be prescribed and applied.

IDAHO FOREST PRACTICES ACT

The Idaho Forest Practices Act (Idaho Code, Title 38, Chapter 13) was enacted in 1974. According to Section 38-1302 the Policy of the State and purpose of the Act is defined as follows:

1. Recognizing that state and private forest lands make a vital contribution to Idaho by providing jobs, products, tax base, and other social and economic benefits, by helping to maintain forest tree species, soil, air and water resources, and by providing a habitat for wildlife and aquatic life, it is the public policy of the State to encourage forest practices on these lands and maintain and enhance those benefits and resources.

2. To encourage forest practices implementing the policy of this chapter, and to provide a mechanism for harmonizing and helping it implement and enforce laws and rules relating to forest land, it is the purpose of this chapter to vest in the Board authority to adopt rules designed to assure the continuous growing and harvesting of forest tree species and to protect and maintain the forest soil, air, water resources, wildlife and aquatic habitat.

The Idaho Forest Practices Act (IFPA) specifically addresses the harvesting of timber species and related road-building, reforestation, application of chemicals and fertilizers, and slash management within a framework of economic, social and environmental considerations. Harvesting has been defined in the Act as a "commercial activity." Therefore, the IFPA and its Rules and Regulations do not apply to the cutting or removal of a forest tree species by an individual for his own personal use. The Act does not address preparatory sale work such as a marking of trees or surveying nor is it concerned with the removal or harvest of incidental vegetation such as berries, ferns, greenery, mushrooms and the like. Idaho's Forest Practices Act is directed to commercial forest activities.

Forest land is defined as "State and private land growing forest tree species which are, or could be at maturity, capable of furnishing raw material used in the manufacture of lumber or other forest products." Although the above definition encompasses more acreage than that for "commercial" forest land, some land is excluded from the IFPA. Only forest practices on state and private lands are directly regulated by the Act. The culture of Christmas trees and the clearing of forest land for conversion to a non-forest use are not regulated by the IFPA.

The IFPA does not apply to federal lands. National forests are administered according to federal law and executive order as described in Appendix C. However, federal agencies must comply with state Water Quality Standards and other pollution control requirements according to Section 313 of the Clean Water Act. Since the Forest Practice Rules and Regulations have been identified as BMPs in the Water Quality Standards, federal agencies are required to meet the intent of the regulations. The Division of Environment signed a Memorandum of Understanding (MOU) with Region 1 and Region 4 of the USFS in 1976 which states that the Forest Service will meet or exceed the water quality protection elements of the Forest Practice Rules and Regulations.

Additional guidance for BMPs is contained in the document, Best Management Practices for Road Activities, (IDHW, 1982). This document is a two-volume handbook which describes alternate practices for road location, design, construction, and maintenance operations. The USFS has signed an addendum to the 1976 MOU with IDHW which describes their commitment to apply the appropriate practices.

Forest Service practices are briefly summarized in the Soil and Water Conservation Handbook, FSH 2509.2 (Review draft, May 1985). The handbook provides guidelines outlining water quality BMPs to be used on National Forest system lands in developing project plans. The handbook references specific manuals and guidelines which are used by an interdisciplinary team in designing site-specific practices for a project.

Primary responsibility for compliance with the IFPA is assigned to the logging operator -- the person who conducts a forest practice. The Act requires the operator to notify the Department of Lands before a forest practice is begun and to comply with rules prescribed by IDL. When violations occur IDL is required to notify the operator and specify which unsatisfactory conditions must be corrected. If the operator fails to make repairs IDL may take appropriate steps to make repairs as directed by the Board of Land Commissioners. Expenses incurred by the state in making repairs may be charged to the operator in the form of a lien upon his property.

The IFPA authorized the Board of Land Commissioners to adopt rules establishing minimum standards for the conduct of forest practices. Rules and Regulations for the IFPA became effective on March 17, 1976 by the approval of the State Legislature. Sections of the rules include definitions, general rules, timber harvesting, road construction and maintenance, reforestation, use of chemicals and fertilizers, and slashing management.

Implementation of the IFPA Rules and Regulations is a formidable task. Each year approximately 2,500 forest practices take place on some portion of the approximately 4,000,000 acres of state and private forest land in Idaho. These operations are often seasonal and conducted in remote areas. The effectiveness of the IFPA program is, therefore, determined by the number of staff which are available to conduct inspections and provide advice.

PROCEDURE FOR REVISING RULES AND REGULATIONS

The procedure for revising the Rules and Regulations is dictated by the Idaho Forest Practices Act (Title 38, Chapter 13, Idaho Code) and the Administrative Procedures Act (Title 67, Chapter 52, Idaho Code). According to the IFPA the Idaho Board of Land Commissioners will adopt rules for forest regions establishing minimum standards for the conduct of forest practices on forest land. A seven-member Forest Practice Advisory committee is appointed for the purpose of providing technical advice to the Board in developing the Rules and Regulations. The seven member advisory committee is composed as follows:

1. One member from each forest region (two) is a private landowner, private timber owner, or their authorized representative.
2. One member residing in each forest region is an operator.
3. One member residing in each region is a representative of the general public.
4. The remaining member is a resident of the state.

A member of the Department of Lands serves as the secretary of the committee. The Director of the Department of Lands has expanded representation on the committee by appointing ex-officio members. Five ex-officio members were appointed in 1987; this includes the executive director for Idaho Forest Owners Association, a small logging business contractor, a representative for the Division of Environment, an independent resource consultant, and a fisheries biologist with the USFS.

The Administrative Procedures Act governs rule-making by all state agencies. Request for written comment on the Rules and Regulations is solicited by legal notice in community newspapers. A public hearing will be held if 20 or more individuals express an interest in a hearing. The regulations are submitted for approval to the Board of Land Commissioners. Rules become effective within 20 days of transmittal and publication by state law libraries. The new rules are subject to legislative review.

In practice, recommendations for changing the Rules and Regulations are submitted to the Forest Practices Advisory Committee. The Committee considers the change and makes a recommendation to the Director of IDL and the Land Board. IDL staff then shepherd the rules through the Administrative Procedures Act which includes public review. The Land Board then moves to adopt the final draft of the rules.

The role of the Idaho Department of Health and Welfare-Division of Environment (IDHW) in revision of the Rules and Regulations is only advisory. IDHW, however, retains authority to review the Rules and Regulations for adequacy as BMPs for silviculture. The current Idaho Water Quality Standards (WQS 1985) lists the Forest Practice Rules and Regulations as approved BMPs for silviculture. There has been no continuous planning process for evaluation and revision of the Forest Practice Rules and Regulations. This deficiency will be corrected through implementation of the feedback loop which will be formalized through this plan and by a Memorandum of Understanding between IDL and IDHW.

NONPOINT SOURCE POLLUTION MANAGEMENT - THE FEEDBACK LOOP

The section above describes the legal process of revising the IFPA Rules and Regulations based on state law. There is also a conceptual process for revising BMPs that has been discussed in relationship to the Idaho WQS. Governor John Evans established a Nonpoint Source Interagency Team from IDHW and IDL

in March 1986, to address the problem of nonpoint source control language in the Idaho WQS. This was in response to an industry sponsored bill (HB-711) in the 1986 Legislature which would have changed the nonpoint source language. The interagency team developed the feedback loop concept as a starting point in resolving this issue. This concept is based on the Clean Water Act and EPA's regulations and policy for nonpoint source pollution control.

Instream criteria (Fig. 1, #1a) are developed to protect the beneficial uses of water that are defined in the Idaho WQS such as swimming, wading, domestic water supply, and fisheries. The criteria are numeric limits for specific parameters which are based on the best available scientific information. Where instream criteria are lacking, such as for sediment, the WQS is based on a narrative statement, such as the phrase "protection of beneficial uses" (#1b). In the absence of applicable water quality data, meeting the narrative standard may be a subjective evaluation by staff based on such information as fish populations, biological indicators, or fisheries habitat measures.

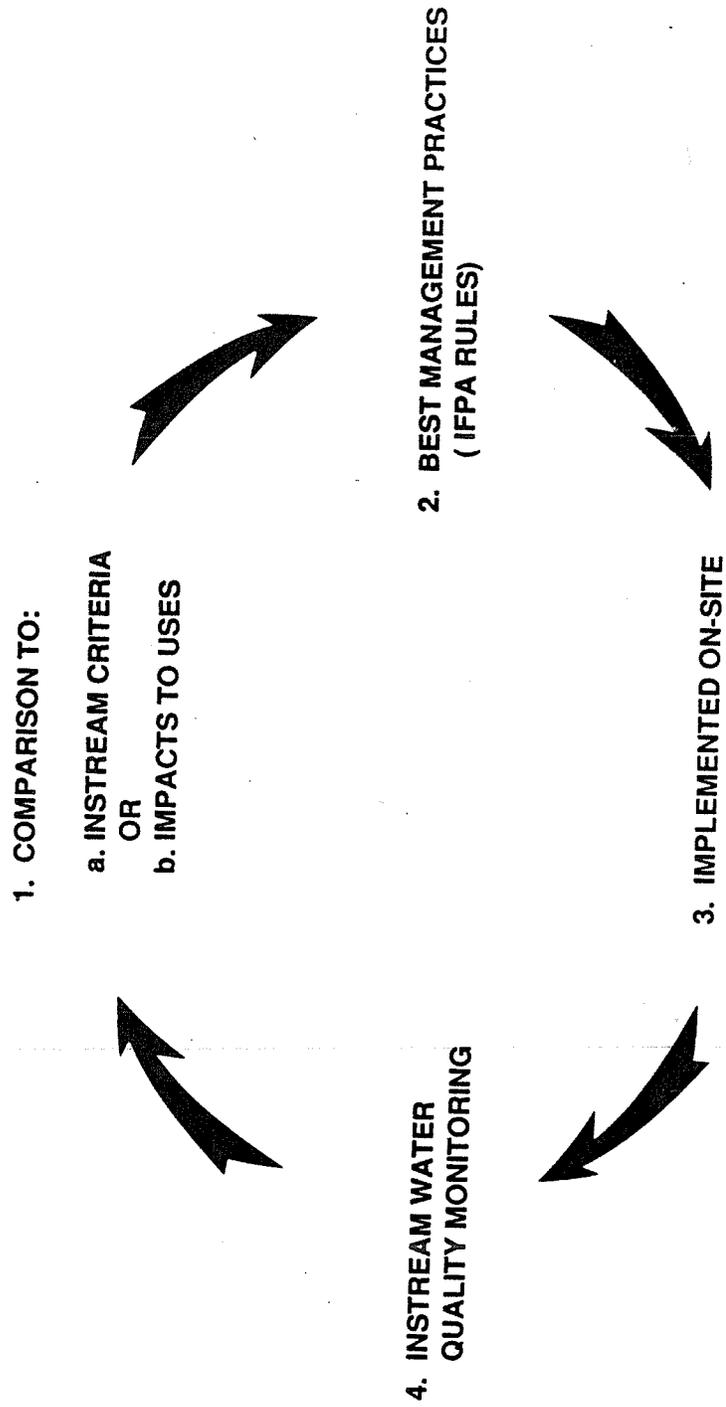
Best management practices (#2) are developed to protect the beneficial uses of water based on the criteria. In the case of silviculture, the IFPA Rules and Regulations have been identified as the BMPs. This establishes a link between water quality and the land management practices. The BMPs are the "tools" the operator uses to protect the beneficial uses.

When BMPs (#3) are implemented on site, an operator's performance is measured by compliance with the BMPs (IDL responsibility), and not by compliance with the instream criteria. Idaho FPA is considered a regulatory program with enforcement capability to require compliance with the BMPs. IDHW's role is to continuously monitor the effectiveness of BMPs to assure that beneficial uses are protected.

Monitoring (#4) is needed to determine if the BMPs have prevented impacts to the beneficial use. Monitoring activities include instream monitoring of parameters which measure impacts on beneficial uses as well as surveillance of BMPs to assure that erosion control objectives for these practices have been met. Where the data indicates that the criteria have not been met then the land management practice needs to be modified to improve protection levels. This constitutes the feedback part of the loop.

All elements of the feedback loop must function properly to assure water quality protection. Implementing this loop for forest practices will require a great deal of increased effort by IDHW and IDL, and these efforts will be dependent on increased funding of state programs. Major stumbling blocks at this time include: lack of an instream criteria for sediment for the protection of fisheries (#1), lack of a mechanism to insure that changes to the IFPA needed for water quality protection will be made (#2), lack of adequate funding for Forest Practice Advisors (#3), and lack of a standard technique for measuring sediment impacts and the funding needed for monitoring by IDHW (#4). Action items described in Chapter II set up a process to address many of these stumbling blocks.

FIGURE 1: NONPOINT SOURCE FEEDBACK LOOP



EVALUATION OF THE RULES AND REGULATIONS FOR FOREST PRACTICES

1. Recommendation of the 208 Committee, 1979

The 208 Technical Review Team made recommendations for changing the Forest Practice Rules based on review of the literature, site visitations of forest practice operations in Idaho, and questionnaires seeking opinions of Idaho land managers, resource managers, and forest operators. Many of the recommendations were editorial and were made to clarify the meaning and intent of the rules. Substantive recommendations were made regarding the section on road construction and maintenance. Two stream classes and stream protection zones were defined. Activities which are permitted within the Class I stream protection zone are much more restrictive. The classification of streams was modeled after the Oregon Forest Practices Act. Other state laws were cross-referenced regarding water quality, stream channel protection, and use of chemicals.

The 208 Team stated that the Idaho Forest Practices Act, with recommended modifications are BMPs for the State of Idaho and are adequate for protecting water quality. The Rules and Regulations represent minimum acceptable standards of operation which, when properly applied, will reduce water quality degradation from forest practices.

Results of questionnaires to resource managers indicate that the primary problem with the rules (adopted 1976) was editorial inconsistencies rather than major technical deficiencies. A majority of resource managers felt that water quality degradation resulted from lack of adherence to the Rules and Regulations and not from inadequacies of the rules. In addition, many resource managers believed that inadequate enforcement and poorly informed operators were the major factors responsible for water quality problems resulting from forest practices.

Results of the land manager survey corroborated the replies of the resource managers. A majority of the problems identified by the land managers in the timber harvesting and road construction and maintenance sections were operator-related. Expanded enforcement and closer supervision will help alleviate many of the problems expressed by the land managers.

Many of the land managers emphasized the importance of an expanded effort to inform forest operators of the rules. Many of the operator-related problems could be alleviated by training programs. A high proportion of the respondents identified lack of knowledge by the operators, inexperience and operators not following recommendations as being important elements of the problems that developed when applying the Rules and Regulations. These results strongly support an amplified effort in training and education methods to increase the success of this state statute. Compliance with the law will be greatly facilitated by having all people who must work with the IFPA fully informed.

One of the major problems observed on site visits by the 208 Technical Review Team was the application of the stream definition. When does a small watercourse become a stream? In some cases, timber that could have been effectively harvested along some streams without any detriment to water quality was being left, while in other areas buffer strips should have been used for stream protection. The Technical Review Team found several inconsistencies in the rules and some that are overly restrictive on forest practices. The proposed changes (adopted August 1985) do not sacrifice water quality for increased timber harvesting production but define more clearly those areas where protection is necessary and those areas requiring less protection. For example, the Rules and Regulations in their 1976 form require that culverts placed on all streams provide for fish passage. Revised rules adopted in 1985 would implement a stream classification system to facilitate identification of waters where fish passage is required (Class I) and of waters that do not support fish (Class II) and therefore do not need to provide for fish passage.

2. Recommendations of the Silvicultural NPS Task Force, 1985

The Silvicultural Nonpoint Source Task Force utilized information from the 25 site inspections to evaluate the effectiveness of the Forest Practices Rules as BMPs. The Task Force used the Forest

Practice Rules as amended in the 1979 208 Plan as the basis for the evaluations. These recommended changes had not been adopted into regulation at that time. It is important to note, therefore, that the recommendations were in addition to the changes suggested by the 1979 208 Technical Review Team.

The Task Force attempted to evaluate the adequacy of the rules separately from implementation of the rules at a particular site. The question that needs to be addressed is: Is the water quality problem at a site due to inadequate rules or lack of meeting the rules? Answering this question will help in determining how solutions to water quality problems can be developed.

The Task Force on-site evaluations corroborated the 1979 208 Team's findings in regard to adequacy of the Forest Practice Rules as BMPs. In general, observed water quality problems were the result of not meeting the Forest Practices Act Rules rather than a problem with the rules.

The Task Force speculated on the effectiveness of the rules in preventing cumulative impacts from forest practice activities, although this could not be directly evaluated from the on-site inspections. The potential for cumulative impacts depends on the land type hazard. Land type hazard was generally defined into low, moderate, and high based on a combination of slope and geology.

The Task Force concluded that the risk for cumulative impacts varied by ownership as well as land type hazard. The USFS is increasingly using watershed planning as a part of their NEPA planning procedures. Cumulative impact analysis includes use of models for predicting the generation of sediment and its impact on in-stream uses, primarily fisheries. With these methods the Task Force stated that the risk for cumulative impacts would be low on low and moderate hazard land types. Under USFS administration the major identified hazard for water quality impacts is associated with the potential for cumulative effects resulting from mass failure potential in high-hazard land types. The significant hazards occur with the road construction and maintenance component of the overall harvest operation on these lands.

On state and private lands only compliance with the Forest Practice Rules is required. There is no requirement for addressing cumulative impacts or watershed planning as on federal lands. Given this background the Task Force believed that the risk for cumulative impacts was low on low hazard land types, but a moderate risk on moderate hazard lands and a high risk on high hazard land types.

The Task Force recommended two specific additions to the changes recommended in the 1979 208 Plan. These were considered required additions for the Forest Practice Rules to be considered as BMPs defined in the Clean Water Act.

1. Require stabilization of cut and fill slopes near stream channels during the same construction season by seeding or other suitable means.

Unstable cut and fill slopes associated with new or reconstructed roads were the major reoccurring source of sediment noted by the Task Force during the on-site visits. The Task Force also noted that prompt seeding of these slopes in the fall where practiced was very effective in reducing erosion. In some cases it was evident that the grass that sprouted in the fall provided erosion protection even during the first critical runoff season. It is the opinion of the Task Force that seeding is a cost-effective method of stabilizing cut and fill slopes that have the potential for delivery of sediment to streams. For this reason the rule should be changed to read:

Rule 4.c.iv.

Where exposed material (excavation, embankment, borrow pits, waste piles, etc.) is potentially erodible, and where sediments would enter streams, stabilize prior to fall or spring runoff by seeding, compacting, riprapping, benching, mulching, or other suitable means.

This rule change was subsequently adopted by the Land Board on September 9, 1986.

2. Require that in logging settings where slopes are predominately steeper than 45 percent, tractor skidding requires a variance.

The reason for this addition is that tractor logging in steep land types with high soil erodibility presents a major potential hazard to water quality. In some situations tractor logging may not be satisfactory regardless of the control procedures used, in other situations tractor logging may be used if skid trails are laid out carefully and extra mitigative measures are prescribed. The variance procedure requires the operator to contact the IDL Woodland Forester prior to entering the sale area. This procedure would result in a consultation with the Forester during which the hazards to streams could be evaluated and alternate logging methods considered before the entry is made. Consideration of stream values, evaluation of the geologic erosion hazard, and opportunities for mitigation should be considered in granting the variance.

Inclusion of these ideas into the rules would require an additional rule which could be included in Rule 3.c.

Tractor skidding requires a variance per Rule 2.a where slopes within a proposed logging setting (that is, the timbered area tributary to a landing or group of contiguous landings) are steeper than 45 percent as measured over 50% of the area.

This rule went through the administrative procedures process in 1986. Based on testimony submitted at the public hearings, substitute language was suggested by the hearing officer. This rule was not adopted by the Land Board and has been sent back to the Forest Practices Act Advisory Committee for further action.

RULES AND REGULATIONS

The Rules and Regulations currently in force were adopted on August 13, 1985 and modified on September 9, 1986. These regulations involve extensive revision based primarily on the recommendations in the 1979 208 Plan. The lengthy period (7 years) between the recommendation and adoption were due to poor follow-through by IDL and IDHW. Formal recognition of agency roles in a MOU in regard to the feedback loop and an annual review by the steering committee will insure that this process is more timely in the future. The Forest Practice Advisory Committee reviewed these recommendations in 1984 and made additional editorial changes. Where feasible, advisory language (e.g., should, avoid) was changed to mandatory language (shall) to be consistent with the regulatory nature of the IFPA.

The rules which were adopted in 1976 and were in force through 1985 are shown on the left hand side. The current rules are shown on the right hand side. This side-by-side comparison will illustrate the progress in improving the rules over time. The reason for any changes is also shown. Minor editorial changes are not explained.

RULE 1: DEFINITIONS
RULE 2: GENERAL RULES

The definition of reforestation is revised to reflect the establishment of a stand after removal of trees by harvesting or catastrophic events.

A stream classification system with different stream protection zones was added to this section. This two-class system is based on the system used in the State of Oregon. Class I streams are used for domestic water supply or for the spawning, rearing, or migration of fish. Class II streams are minor headwater streams whose principal value lies in their influence on Class I streams. There is no distinction made based on flow; Class I streams may be permanent or intermittent. More protection from timber harvesting and road building is provided for Class I streams over the previous rules. At the same time the narrower stream protection zone for Class II streams eases the restrictions along these areas and allows for increased harvest.

It is realized by all parties involved in defining these stream classes that the definitions do not stand alone. The definitions primarily express the intent of the writers in designating different protection levels. Policies and criteria will need to be developed to further classify the streams. It is generally recognized that a comprehensive effort to classify all streams in Idaho is beyond the resources of state agencies.

Streams are getting classified on an informal basis between the agencies and the operators as a result of these new regulations. Idaho Fish and Game staff are responsible for deciding what the capability of a stream is for supporting spawning, rearing, or passage of fish and therefore for classification based on fisheries. The Idaho Department of Health and Welfare is supplying information to the Idaho Department of Lands in regard to use of streams for domestic water supplies. Also, the Idaho Department of Water Resources is being contacted in regard to existing records of water rights for domestic use. This information is being recorded at the Department of Lands' Area Offices for dissemination to logging operators.

Interpretation of what constitutes a stream continues to be a problem. This was recognized by the 208 Technical Review Team in 1979. The question is: At what point in a drainage system does the Class II stream definition no longer apply? The implication is that at some point upstream the operator is no longer liable under the Forest Practices Act. Also, the question has been raised in regard to protection of water supplies: How far above a domestic water supply should a stream be classified as a Class I stream? Individual domestic diversions are often located on small streams near the mouth. The effect of Class I restrictions on the upstream landowner needs to be considered as well as the need to protect the water supply.

These questions were addressed by the Forest Practice Advisory Committee on January 23, 1986. The following changes were recommended. The italicized sentences show the additions:

"Stream" means a natural water course of perceptible extent with definite beds and banks which confines and conducts continuously or intermittently flowing water. *Definite beds are defined as having a sandy or rocky bottom which results from the scouring action of water flow.*

Class I streams are used for domestic water supply or are important for the spawning, rearing, or migration of fish. *Such waters shall be considered to be Class I upstream from the point of domestic diversion for a minimum of 1,320 feet.*

The rationale for the first change is that it gives the person in the field a definitive characteristic to examine. Draws or depressions which carry water for a short period will generally have a bed that consists of forest litter and needles, and are not important for water quality. A sandy bottom, although only a few inches wide, indicates that the draw is capable of delivering sediment to waters downstream.

The second rule is modified from the State of Washington Forest Practice Rules. The length indicated is one-quarter of a mile which is easily determined on topographic maps.

As with any set of rules, there will be occasions when an exception to the rules may be necessary. To provide latitude in prescription of BMPs a variance procedure has been incorporated into the rules. The variance procedure will be used to give the operator an opportunity to use different methods as long as they result in equivalent or better results over the long term than the rules which are superseded.

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| 811.00 | GENERAL DEFINITIONS: Unless otherwise required by context as used in these regulations: | RULE 1. GENERAL DEFINITIONS
No change. |
| 811.01 | " <u>Act</u> " means the Forest Practices Act of 1974, Title 38, Chapter 13, <u>Idaho Code</u> . | a. "Act" means the Idaho Forest Practices Act, Idaho Code, Title 38, Chapter 13. |
| 811.02 | " <u>Acceptable Tree Species</u> " means any of the species normally marketable in the region, including Christmas trees, which are suitable for the specific site requiring reforestation. | No change. |
| 811.03 | " <u>Additional Hazard</u> " means the debris, slashings, and forest fuel resulting from a forest practice. | No change. |
| 811.04 | " <u>Board</u> " means the Idaho Board of Land Commissioners. | d. "Board" means the Idaho State Board of Land Commissioners or its designee. |
| 811.05 | " <u>Buffer Strip</u> " means a protective area adjacent to an area requiring special attention or protection. | No change. |
| 811.06 | " <u>Chemicals</u> " means substances applied to forest lands or timber to accomplish specific purposes and includes pesticides, rodenticides, plant growth regulators, fungicides, fertilizers, dessicants, fire retardants (other than water), salt, and other materials that may present hazards to the environment. | No change. |
| 811.07 | " <u>Commercial Products</u> " means salable forest products of sufficient value to cover cost of harvest and transportation to available markets. | No change. |
| 811.08 | " <u>Contaminate</u> " means to introduce into the atmosphere, soil, or water sufficient quantities of substances as are injurious to public health, safety, or welfare or to domestic, commercial, industrial, agriculture or recreational uses or to livestock, wildlife, fish or other aquatic life. | h. "Contaminate" means to introduce into the atmosphere, soil, or water sufficient quantities of substances that are injurious to public health, safety, or welfare or to domestic, commercial, industrial, agriculture, or recreational uses or to livestock, wildlife, fish or other aquatic life. |
| 811.09 | " <u>Department</u> " means the Idaho Department of Lands. | No change. |

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- 811.10 "Director" means the Director of the Idaho Department of Lands. j. "Director" means the Director of the Idaho Department of Lands or his designee.
- 811.11 "Emergency Forest Practice" means a forest practice initiated during or immediately after a fire, flood, windthrow, earthquake, or other catastrophic event to minimize damage to forest lands, timber, or public resources. No change.
- 811.12 "Fertilizers" means any substance or any combination or mixture of substances used principally as a source of plant food or soil amendment. No change.
- 811.13 "Fire Trail" means access routes that are located and constructed in a manner to be either useful in fire control efforts or deterring the fire spread in the hazard area. No change.
- 811.14 "Forest Land" means state and private land growing forest tree species which are, or could be at maturity, capable of furnishing raw material used in the manufacture of lumber or other forest products. The term includes state and private land from which forest tree species have been removed but have not yet been restocked. It does not include land affirmatively converted to uses other than the growing of forest tree species. No change.
- 811.15 "Forest Practice" means (a) the harvesting of forest tree species, (b) road construction associated with harvesting of forest tree species, (c) reforestation, (d) use of chemicals or fertilizers for the purpose of growing or managing forest tree species, or (e) the management of slashings resulting from harvest, management or improvement of forest tree species. "Forest Practice" shall not include preparatory work such as tree marking, surveying, and road flagging or removal or harvesting of incidental vegetation from forest lands; such as berries, ferns, greenery, mistletoe, herbs, mushrooms, or other products which cannot normally be expected to result in damage to forest soils, timber, or public resources. No change.
- 811.16 "Forest Regions" means two regions of forest land: one being north of the Salmon River and one being south of the Salmon River. No change.

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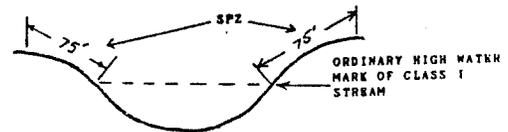
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| 811.17 | <p><u>"Harvesting"</u> means a commercial activity related to the cutting or removal of forest tree species to be used as a forest product. A commercial activity does not include the cutting or removal of forest tree species by a person for his own personal use.</p> | No change. |
| 811.18 | <p><u>"Hazard Reduction"</u> means the burning or physical reduction by treatment in some manner which will reduce the risk after treatment.</p> | x. "Hazard Reduction" means the burning or physical reduction of logging slash by treatment in some manner which will reduce the risk from fire after treatment. |
| 811.19 | <p><u>"Hazard Offset"</u> means improvements or a combination of practices which reduces the spread of fire and increases the ability to control fire.</p> | No change. |
| 811.20 | <p><u>"Herbicide"</u> means any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any weed including algae and other aquatic weeds.</p> | No change. |
| 811.21 | <p><u>"Insecticide"</u> means any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any insect, other arthropod, or mollusk.</p> | No change. |
| 811.22 | <p><u>"Landowner"</u> means a person, partnership, corporation, or association of whatever nature that holds an ownership interest in forest lands, including the state.</p> | No change. |
| 811.23 | <p><u>"Logging Slash"</u> means any vegetative residue resulting from logging of commercial products.</p> | No change. |
| 811.24 | <p><u>"Stream"</u> means a natural water course of perceptible extent with definite beds and banks which confines and conducts continuously or intermittently flowing water.</p> | <p>x. "Stream" means a natural water course of perceptible extent with definite beds and banks which confines and conducts continuously or intermittently flowing water. Definite beds are defined as having a sandy or rocky bottom which results from the scouring action of water flow.</p> <p>x.i. Class I streams are used for domestic water supply or are important for the spawning, rearing or migration of fish. Such waters shall be considered to be Class I upstream from the point of domestic diversion for a minimum of 1,320 feet.</p> |

x.ii. Class II streams are usually headwater streams or minor drainages that are used by only a few, if any, fish for spawning or rearing. Their principle value lies in their influence on water quality or quantity downstream in Class I streams.

x.iii. Class I Stream Protection Zone means the area encompassed by a slope distance of 75 feet on each side of the ordinary high-water marks.

CLASS I STREAM PROTECTION ZONE



x.iv. Class II Stream Protection Zone means (at minimum) the area encompassed within the ordinary highwater.

[Rationale: The current stream classification system recognizes a difference in required protection levels based on stream uses-fish habitat and/or domestic water supply. This affords greater protection where it is needed, and eases the restrictions where stream uses do not occur. The concept of Stream Protection Zone replaces buffer strips to place emphasis on careful management along streams rather than a blanket restriction on activities.]

811.25 "Merchantable Material" means that portion of forest tree species suitable for the manufacture of commercial products which can be merchandized under normal market conditions.

y. "Merchantable Material" means that portion of forest tree species suitable for the manufacture of commercial products

- 811.26 "Merchantable Stand of Timber" means a stand of trees that will yield logs and/or fibre:
- 811.27 "Mixed Forest Type" means those forest areas in Idaho where the climate and site are naturally suited primarily for the growing of commercial species other than ponderosa pine.
- 811.28 "Operator" means a person who conducts or is required to conduct a forest practice.
- 811.29 "Ordinary Highwater Mark" means that mark on all water courses, which will be found by examining the beds and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation, as that condition exists on the effective date of this chapter, or as it may naturally change thereafter.
- 811.30 "Partial Cutting" means the well distributed removal of a portion of the merchantable volume in a stand of timber.
- 811.31 "Ponderosa Pine Type" means those forest areas in Idaho where the climate and site are naturally suited primarily for the growing of commercial quality ponderosa pine.
- which can be merchandised under normal market conditions.
- z. "Merchantable Stand of Timber" means a stand of trees that will yield logs and/or fiber:
- z.i. Suitable in size and quality for the production of lumber, plywood, pulp, or other forest products.
- z.ii. Of sufficient value at least to cover all costs of harvest and transportation to available markets.
- aa. "Mixed Forest Type" means those forest areas in Idaho where the climate and site are naturally suited primarily for the growing of commercial species other than ponderosa pine. For purposes of this definition "primarily" means forest areas containing less than 25 percent by volume of ponderosa pine.
- No change.
- No change.
- dd. "Partial Cutting" means the well-distributed removal of a portion of the merchantable volume in a stand of timber. This includes seed tree, shelterwood, or individual tree selection harvesting techniques.
- ee. "Ponderosa Pine Type" means those forest areas in Idaho where the climate and site are naturally suited primarily for the growing

of commercial-quality ponderosa pine. For purposes of this definition, "primarily" means forest areas containing at least 25 percent ponderosa pine by volume.

811.32 "Public Resource" means water, fish, and wildlife, and in addition means capital improvements of the State or its political subdivisions.

No change.

811.33 "Reforestation" means the establishment of an adequately stocked stand of trees of desirable species to replace the ones removed by a harvesting operation conducted on commercial forest land.

gg. "Reforestation" means the establishment of an adequately-stocked stand of trees of species acceptable to the department to replace the ones removed by a harvesting or a catastrophic event on commercial forest land.

[Rationale: Removal of trees on non-commercial forest lands constitutes a conversion. Lands not intended to be converted must be stabilized to alleviate water quality degradation. Large volumes of sediment may be added to stream courses as a result of harvest operations or catastrophic events from forest lands. It is imperative to have these areas reforested.]

811.34 "Relief Culvert" means a structure to relieve surface runoff from roadside ditches to prevent excessive buildup in volume and velocity.

No change.

811.35 "Rodenticide" means any substance or mixture of substances intended to prevent, destroy, repel, or mitigate rodents or any other vertebrate animal which the Director of the State Department of Agriculture may declare by regulation to be a pest.

No change.

811.36 "Rules" means rules adopted by the Board pursuant to Section 6.

ii. "Rules" means rules adopted by the Board pursuant to Idaho Code Section 38-1304.

811.37 "Site" means an area considered as to its ecological factors with reference to capacity to produce forest vegetation; the combination of biotic, climatic, and soil conditions of an area.

No change.

811.38 "Soil Erosion" means movement of soils resulting from forest practices.

No change.

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- 811.39 "Soil Stabilization" means minimizing soil movement.
- 811.40 "Slash" means any vegetative residue resulting from forest practice activities.
- 811.41 "State" means the State of Idaho or other political subdivision thereof.
- 811.42 "Timber Owner" means a person, partnership, corporation, or association of whatever nature, other than the landowner, that holds an ownership interest in forest tree species on forest land.
- 811.43 "Water Bar" means a diversion ditch and/or hump in a trail or road for the purpose of carrying surface water runoff into the vegetation duff, ditch, or other dispersion area so that it does not gain the volume and velocity which causes soil movement and erosion.

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mm. "Soil Stabilization" means the minimizing of soil movement.

No change.

No change.

No change.

No change.

rr. "Fuel Quantity" means the diameter, the number of stems and the predominate species to be cut or already cut, and the size of the continuous thinning block all of which determine quantity of fuel per unit of area.

ss. "Hazard" means any vegetative residue resulting from a forest practice which constitutes fuel.

tt. "Average DBH" means average diameter in inches of trees cut or to be cut, measured at 4.5 feet above mean ground level on standing trees. All trees to be cut that do not have a measurable DBH will fall in the one-inch class.

uu. "Size of Thinning Block" means acres of continuous fuel creating an additional hazard within a forest practice area. Distance between the perimeter of thinning blocks containing continuous fuel must be a minimum of six (6) chains apart to qualify as more than one block.

vv. "Site Factor" means a combination of percent of average ground slope and predominate aspect of the forest practice area which relate to rate of fire spread.

ww. "Condition of Adjoining Area" means those fuel conditions in adjoining areas that relate to spread of fire and to economic values of the adjoining area.

xx. "Snags" means dead, standing trees twenty (20) feet and greater in height.

yy. "Cull" means nonmerchantable, alive, standing trees of greater height than twenty (20) feet.

zz. "Deterioration Rate" means rate of natural decomposition and compaction which decreases the hazard and varies by site.

aaa. "Slash" means any vegetative residue resulting from a forest practice.

bbb. "Operating Area" means that area where a forest practice is taking place or will take place.

ccc. "Present Condition of Area" means the amount or degree of hazard present before a thinning operation commences.

ddd. "Hazard Points" means the number of points assigned to certain hazardous conditions on an operating area, to actions designed to modify conditions on the same area or to actions by the operator, timber owner or landowner to offset the hazardous conditions on the same area.

eee. "Time of Year of Forest Practice" means those combinations of months during which time the forest practice is taking

812.01 Compliance. Practices contained within a rule shall be complied with to accomplish the purpose to which the rule is related unless the operator, timber owner, or landowner has secured written approval from the Director of a plan for an alternate practice or practices which provide for equivalent or better results.

place. Points assigned are:
October through December - 2
points; August through September
- 4 points; January through
April - 7 points; May through
July - 10 points.

RULE 2. GENERAL RULES

a. Compliance. Practices contained within a rule shall be complied with to accomplish the purpose to which the rule is related.

a.i. If conditions of sites or activities require the application of practices which differ from those prescribed by the rules, the operator shall obtain a variance according to the following procedure:

(a) The operator shall submit a request for variance to the department in writing. The request shall include a description of the site and particular conditions which necessitate a variance, and a description of proposed practices which, if applied, will result in a violation of the rules.

(b) Within 14 days the department shall evaluate the request and notify the operator in writing of the determination to allow or disallow the variance request.

(c) All practices authorized under this procedure shall provide for equivalent or better results over the long term than the rules which are superseded to insure site productivity, water quality and fish and wildlife habitat. A variance can be applied only at approved sites.

[Rationale: To be most effective in protecting water quality, best management practices must be prescribed to fit the characteristics of each site and activity (site specific). On

occasion site conditions may necessitate a variation from the best management practices required by the Rules. To provide for such situations a specific variance procedures is incorporated into the Rules.)

a.ii. Practices shall also be in compliance with the Stream Channel Alteration Act (Title 42, Chapter 38, Idaho Code), Idaho Water Quality Standards and Wastewater Treatment Requirements (Title 39, Chapter 1, Idaho Code), the Idaho Pesticide Law (Title 22, Chapter 34, Idaho Code), and the Hazardous Waste Management Act of 1983 (Title 39, Chapter 44, Idaho Code), and rules and regulations pursuant thereto.

812.02 **Conversion of Forest Lands.** When a landowner elects to convert his forest land to another use, he shall accomplish a conversion within the period of five years required to achieve reforestation as specified in 815.02 of these rules. The determination by the Director as to whether or not this has been accomplished shall be governed by:

No change

- (a) the presence or absence of improvements necessary for use of land for its intended purpose.
- (b) evidence of actual use of the land for the intended purpose.

812.03 **Annual Review and Consultation.** The Director shall, at least once each year, meet with other state agencies and the Forest Practices Advisory Committee and review recommendations for amendments to rules, new rules, or repeal of rules. He shall then report to the Board a summary of such meeting or meetings, together with recommendations for amendments to rules, new rules, or repeal of rules.

No change.

812.04 **Consultation.** The Director shall consult with the personnel of other state agencies and departments concerned with the forest environment situations where expertise

2.d. Consultation. The director shall consult with other state agencies and departments concerned with the management of

from such agencies or departments is desirable or necessary.

forest environment where expertise from such agencies or departments is desirable or necessary.

812.05

Notification of Forest Practice.

- (1) Before commencing a forest practice the Department shall be notified as required in subsection (2) of this section. The notice shall be given by the operator. However, the timber owner or landowner satisfies the responsibility of the operator under this subsection. When more than one forest practice is to be conducted in relation to harvesting of forest tree species, one notice including each forest practice to be conducted shall be filed with the Department.
- (2) The notification required by subsection (1) of this section shall be on forms prescribed and provided by the Department and shall include the name and address of the operator, timber owner, and landowner; the legal description of the area in which the forest practice is to be conducted; and other information the Department considers necessary for the administration of the rules adopted by the Board under Section 4. Promptly upon receipt of the notice but not more than 15 days from receipt of the notice, the Department shall mail a copy of the notice to whichever of the operator, timber owner, or landowner that did not submit the notification. The Department shall make available to the operator, timber owner, and landowner a copy of the rules.
- (3) An operator, timber owner, or landowner, whichever filed the original notification, shall notify the Department of any subsequent change in the information contained in the notice within 30 days of the change. Promptly upon receipt of notice of change, but not to exceed 15 days from receipt of notice, the Department shall mail a copy of the notice to whichever of the operator, timber owner, or landowner that did not submit the notice of change.

No change.

No change.

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- (4) The notification is valid for a period not to exceed 2 years from the date of original notification. At the expiration of the 2-year period, if the forest practice is continuing, the notice shall be renewed annually using the same procedures provided for in this section.
- (5) If the notice required by subsection (1) of this section indicates that the expiration of 2 years from the date of notice that the forest practice will be continuing, the Department, at least 60 days prior to the expiration of the 2-year period, shall notify the operator, timber owner, or landowner, whichever filed the original notification, of the expiration date.

812.06

Types of Operations for which Notification Shall be Required. The notification required shall be valid for two years from date of notice and shall be required for the following types of forest practices:

- (1) The harvesting of forest crops including felling, bucking, yarding, decking, loading, and hauling; road construction or improvement, including installation or improvement of bridges, culverts or structures which convey stream flows within the area described.
- (2) Road construction or reconstruction of existing roads including installation or replacement of bridges, culverts, or structures which convey streams not within harvesting of forest tree species.
- (3) Reforestation.
- (4) Application of insecticides, herbicides, rodenticides, and fertilizer for the purpose of growing or managing forest tree species.
- (5) Pre-commercial thinning.

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No change.

2.e.v. If the notice required by subsection i. of this section indicates that at the expiration of two-years from the date of notice the forest practice will be continuing, the operator, timber owner or landowner, at least 30 days prior to the expiration date of the two-year period, shall notify the department and obtain a renewal of notification. Promptly upon receipt of request for renewal, but not later than 15 days, the department shall mail a copy of the renewed notice to the operator, timber owner or landowner that did not submit the request for renewal.

No change

812.07

Types of Operation for Which Notice Will Not be Required.

No change.

- (1) Routine road maintenance, recreational uses, grazing by domestic livestock, cone picking, culture and harvest of Christmas trees on lands used solely for the production of Christmas trees, or harvesting of other minor forest products.
- (2) Forest Practices conducted in accordance with the provisions of a woodlot management plan approved by woodlot foresters of the Department or a similar woodlot or farm or ranch plan approved by the Board of Supervisors of a soil conservation district which are exempt from the provisions of this Act.
- (3) Non-commercial cutting and removal of forest tree species by a person for his own personal use.
- (4) Clearing forest land for conversion to non-forest use.

2.f.vi. A woodland management plan prepared by a forest practice advisor of the department or approved by the board of supervisors of a soil conservation district shall constitute a notification of a forest practice when filed with the department, provided it contains the information required in Rule 2.3.ii.

812.08

Emergency Forest Practices. No prior notification shall be required for emergency forest practices necessitated by and commenced during or immediately after a fire, flood, wind-throw, earthquake, or other catastrophic event. Within 48 hours after commencement of such practice, the operator, timber owner, or landowner shall notify the Director with an explanation of why emergency action was necessary. Such emergency forest practices are subject to the rules herein, except that the operator, timber owner, or landowner may take any reasonable action to minimize damage to forest lands, timber, or public resource from the direct or indirect effects of the catastrophic event.

No change.

812.09

Duty to Purchaser. The initial purchaser of forest tree species which have been harvested from forest lands shall, before making such purchase or contract to purchase or accepting delivery of the same, receive and keep on file a copy of the notice required by Section 38-1306 of the Act relating to the harvesting practice for which the forest tree species are

No change.

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being acquired by the initial purchaser. Such notice shall be available for inspection upon request by the Department at all reasonable times.

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|--------|---|------------|
| 812.10 | <u>Leakage or Accidental Spillage of Petroleum Products.</u> Take adequate precautions to prevent leakage or accidental spillage of any petroleum products in such a location that they will enter any stream, water course or area of open water. In the event any leakage or spillage enters any stream, water course or area of open water, the operator will immediately notify the Director. | No change. |
| 812.11 | <u>State Divided Into Regions.</u> For the purpose of administering this Act, the state is divided into two forest regions: one being north of the Salmon River and one south of the Salmon River. | No change. |
| 812.12 | <u>Regions Divided Into Forest Types.</u> For the purpose of further refining the on-the-ground administration of the Act, the forest regions are divided into two broad forest types, i.e., Ponderosa Pine type and Mixed Species type. | No change. |

RULE 3: TIMBER HARVESTING

Many of the changes to the timber harvesting section were made to accommodate the stream classification system. The current rules are more restrictive in Class I stream protection zones in regard to slash disposal and shading than in Class II stream protection zones. This affords better protection for fishery and domestic water supply streams, but also lessens the restrictions in streams where these uses do not occur.

Mandatory language has replaced the advisory language in the previous rules with respect to protection of soils during skidding and skidding through streams.

The rules regarding installation of erosion control practices has been clarified. Skid trails are to be stabilized prior to fall or spring runoff. The previous rules did not specify any time period.

The role of large organic debris (logs, stumps, root wads) to fish habitat should be addressed in future revisions to the rules. Large organic debris is important to fisheries habitat in forested streams - providing hiding cover, creating pools and spawning habitat, and causing sediment storage sites in streams. There is evidence that policies which require removal of all slash has been detrimental to fish habitat. However, deciding which logs should be left in a stream requires the judgements of professionals such as hydrologists or fisheries biologists. These professionals are not available on the majority of operations. Therefore, the current rules continue to require the removal of all slash from streams.

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813.00 TIMBER HARVESTING

813.01 Purpose. Harvesting of forest tree species is an integral part of forest management by which forests are established and tended. It is recognized that during harvesting operations there will be a temporary disturbance to the forest environment. It is the purpose of these rules to establish minimum standards for forest practices that will maintain the productivity of the forest land and minimize soil and debris entering streams and protect wildlife and fish habitat.

813.02 Quality of Residual Stocking. On any operation, trees which are left for future harvest shall be of sufficient vigor and acceptable species to assure continuous growing and harvesting of forest tree species and shall be adequately protected from damage resulting from harvest operations to enhance their survival and growth. This may be accomplished by locating roads and landings and by conducting felling, bucking, yarding, and decking operations so as to minimize damage to or loss of residual trees.

- (1) When stands have a high percentage of unacceptable growing stock, consider stand conversion rather than intermediate cuttings.

813.03 Soil Protection. Avoid tractor or wheel skidding on unstable, saturated or easily compacted soils and on excessively steep slopes unless operations can be conducted without causing deep soil disturbance or accelerated erosion.

- (1) Locate skid trails where sidecasting is held to a minimum.
 - (a) Limit the grades on unstable, saturated or easily compacted soils to a maximum of 30 percent.
- (2) Minimize the size of landing to that necessary for safe economical operation.

CURRENT, ADOPTED 9/9/86

RULE 3. TIMBER HARVESTING

3.a. Purpose. Harvesting of forest tree species is a part of forest management by which wood for human use is obtained and by which forests are established and tended. It is recognized that during harvesting operations there will be a temporary disturbance to the forest environment. It is the purpose of these rules to establish minimum standards for forest practices that will maintain the productivity of the forest land and minimize soil and debris entering streams and protect wildlife and fish habitat.

No change.

3.c. Soil Protection. Select for each harvesting operation the logging method and type of equipment adapted to the given slope, landscape and soil properties in order to minimize soil erosion.

c.i. Tracked or wheel skidding shall not be conducted on geologically unstable, saturated, or easily-compacted soils, or on excessively steep slopes, unless the operation can be conducted without causing accelerated erosion.

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- (3) Limit cable logging to uphill yarding. When downhill cable yarding is necessary, use a layout and system which minimize unfavorable soil disturbance.

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c.ii. Limit the grade of constructed skid trails on geologically unstable, saturated, or highly erodible or easily-compacted soils to a maximum of 30 percent.

c.iii. In accordance with appropriate silvicultural prescriptions, skid trails shall be kept to the minimum feasible width and number. Tractors used for skidding shall be limited to the size appropriate for the job.

c.iv. Uphill cable yarding is preferred. Where downhill yarding is used, reasonable care shall be taken to lift the leading end of the log to minimize downhill movement of slash and soils.

[Rationale: Consideration of site characteristics - slope, topography, and soils - is emphasized when selecting a logging method. The advisory language "avoid" was replaced by the more regulatory language "shall not" regarding tractor skidding on unstable soils. The adjective "constructed" was added to the rule regarding skid trail grade to clarify the intent of the rule. Skid trails which do not disturb the mineral soil are not restricted by grade because they will not cause an erosion hazard.]

813.04 Location of Landings, Skid Trails, and Fire Trails. Locate landings, skid trails, and fire trails on stable areas so as to prevent the risk of material entering streams.

- (1) Locate landings, skid trails, and fire trails on firm ground above the ordinary highwater mark of any stream. Portion moved from 813.03(1).

3.d. Location of Landings, Skid Trails, and Fire Trails. Locate landings, skid trails, and fire trails on stable areas to prevent the risk of material entering streams.

d.i. Construct new landings, skid trails, and fire trails on stable areas outside the appropriate stream protection zones.

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- (2) Avoid tractor skidding across slumps and slides.

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Locate fire and skid trails where sidecasting is held to a minimum.

d.ii. Minimize the size of a landing to that necessary for safe economical operation.

d.iii. To prevent landslides, fill material used in landing construction shall be free of loose stumps and excessive accumulations of slash. On slopes where sidecasting is necessary, landings shall be stabilized by use of seeding, compaction, ripping, benching, mulching or other suitable means.

[Rationale: Construction of landings on steep slopes is sometimes necessary. The previous rules did not address construction procedures which are necessary to stabilize these areas. Woody material is prohibited because its eventual decomposition can create unstable soil conditions. Some method of stabilization is required where landings have been constructed by sidecasting.]

813.05

Drainage Systems. For each landing, skid trail or fire trail a drainage system shall be provided and maintained that will control the dispersal of surface runoff water for such exposed soils in order to minimize turbid waters from draining into main streams.

- (1) Construct skid trails and fire trails by providing frequent dips or trail diversions whenever feasible.
- (2) Stabilize skid trails whenever they are subject to washing immediately following completion by water barring, cross draining, scarifying, seeding or other suitable means.
- (3) Reshape landings as needed to facilitate drainage and, after use, stabilize all landings by establishing ground cover or other means which

3.e. Drainage Systems. For each landing, skid trail or fire trail a drainage system shall be provided and maintained that will control the dispersal of surface water in order to prevent sediment from damaging Class I streams.

e.i. Stabilize skid trails and fire trails whenever they are subject to erosion, by water barring, cross draining, outslipping, scarifying, seeding or other suitable means. This work shall be kept current to prevent erosion prior to fall and spring runoff.

e.ii. Reshape landings as needed to facilitate drainage prior to fall and spring runoff.

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accomplish stabilization within one year after harvesting is completed.

813.06

Treatment of Waste Materials. All debris, overburden, and other waste material associated with harvesting shall be left or placed in such a manner as to prevent their entry by erosion, highwater, or other means into streams.

- (1) Trees shall be felled, bucked, and limbed so the tree or any part thereof will fall away from any stream. Remove slash and other debris that gets into such a stream immediately following skidding. Place removed material above the ordinary highwater mark.
- (2) Deposit excess material from landing construction in stable locations well above the ordinary highwater mark.
- (3) Waste resulting from logging operations such as crankcase oil, filters, grease and oil containers, machine parts, old wire rope, and used tractor tracks will be disposed of immediately following termination of harvesting operations. At no time shall such materials be placed in waterways.

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Stabilize all landings by establishing ground cover or by some other means within one year after harvesting is completed.

[Rationale: The timing of erosion control practices is clarified by the current rule in comparison to the previous rules. Erosion control work must be completed prior to runoff, which usually occurs with fall rains or spring snowmelt, to be effective.]

3.f. Treatment of Waste Materials. All debris, overburden, and other waste material associated with harvesting shall be left or placed in such a manner as to prevent their entry by erosion, highwater, or other means into streams.

f.i. Wherever possible trees shall be felled, bucked, and limbed in such a manner that the tree or any part thereof will fall away from any Class I streams. Continuously remove slash and other debris that enters Class I streams as a result of harvesting operations. Place removed material five feet slope distance above the ordinary high water mark.

f.ii. Remove slash and other debris that enters Class II streams whenever there is a potential for stream blockage or if the stream has the ability for transporting the debris immediately following skidding and place removed material above the ordinary high water mark or otherwise treat as prescribed by the department. No formal variance is required.

f.iii. Deposit waste material from construction or maintenance of landings and skid and fire trails in geologically stable locations outside of the appropriate Stream Protection Zone.

f.iv. Waste resulting from logging operations, such as crankcase oil, filters, grease and oil containers, shall not be placed inside Class I or Class II Stream Protection Zones.

[Rationale: The modifications of these rules recognizes the need for greater protection of Class I streams. Slash can drastically alter channel characteristics and promote channel scour if allowed to accumulate either in the channel or in areas where it can be transported to the channel during high flows.]

813.07

Stream Protection. During and after harvesting operations, stream beds and stream-side vegetation shall be maintained in as near natural state as possible in order to maintain water quality and aquatic habitat.

- (1) Avoid tractor skidding in or through any stream. When streams must be crossed, provide adequate temporary structures to carry stream flow. Remove all temporary crossings immediately after use and, where applicable, water bar the road ends.
- (2) Avoid cable yarding through any stream. When yarding across streams is necessary, yarding shall be done to prevent streambank vegetation and channel disturbance.
- (3) Provide the shading, soil stabilizing and water filtering effects of vegetation along streams by one or more of the following:
 - a. Leave hardwood trees, shrubs, grasses, and rocks wherever they afford shade over a stream or maintain the integrity of the soil near a stream.
 - b. Where insufficient non-merchantable tree species exist to provide up to 75 percent of the original shade over the stream, a harvest plan acceptable to the Department of scattered cuttings

3.g. Stream Protection. During and after forest practice operations, stream beds and stream-side vegetation shall be protected to leave them in the most natural condition as possible to maintain water quality and aquatic habitat.

g.i. Tracked or wheel skidding in or through streams shall not be permitted. When streams must be crossed, adequate temporary structures to carry stream flow shall be installed. Cross the stream at right angles to its channel if at all possible. (Construction of hydraulic structures in stream channels is regulated by the Stream Channel Alteration Act - Title 42, Chapter 38, Idaho Code). Remove all temporary crossings immediately after use and, where applicable, water bar the ends of the skid trails.

g.ii. When cable yarding is necessary, across or inside the Stream Protection Zones it shall be done in such a manner as to minimize stream bank vegetation and channel disturbance.

g.iii. Provide the shading, soil stabilization and water filtering effects of vegetation along Class I streams by one or more of the following:

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or other means, shall be developed which will not result in a significant increase in stream temperature or remove a substantial amount of cover necessary for wildlife.

- c. Carefully log the mature timber from the buffer strip in such a way that shading and filtering effects are not destroyed.
- d. Buffer strip width will be 75 feet unless a lesser width is approved by the Department. It must be realized that the necessary width will vary with the steepness of terrain, other topographic feature, the nature of the undercover, the kind of soil, and the amount of timber that is to be removed.
- e. Where it is difficult to leave a buffer strip of timber to shade a stream, as determined by the Department, plan to reestablish cover along the stream within one year after cutting is completed.

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(a) Leave hardwood trees, shrubs, grasses, and rocks wherever they afford shade over a stream or maintain the integrity of the soil near a stream.

(b) Where insufficient non-merchantable tree species exist to provide 75 percent of the original shade over the stream, a harvest plan acceptable to the department, of scattered cuttings or other means, shall be developed which will not result in a significant increase in stream temperature or remove a substantial amount of cover necessary for wildlife.

(c) Carefully log the mature timber from the Stream Protection Zone in such a way that shading and filtering effects are not destroyed.

(d) Where it is not feasible to leave trees and shrubs to shade a stream, the variance procedure (Rule 2.a.) shall be followed to reestablish streamside vegetation within one year after cutting, site preparation or burning.

g.iv. Provide soil stabilization and water filtering effects along Class II streams by leaving undisturbed soils in widths sufficient to prevent washing of sediment into Class I streams. In no case shall this width be less than 5 feet slope distance above the ordinary high water mark on each side of the stream.

[Rationale: The advisory language "avoid" has been replaced by mandatory language to emphasize stream protection in this section. Skidding and yarding through streams can greatly increase sedimentation and reduce the stabilization potential of vegetation. The buffer strip concept has been replaced by stream protection zone. This places an emphasis on careful management in

streamside areas rather than a complete ban on activities. Shading is important on Class I streams to maintain cool temperatures for cold water biota. Shading is not required on Class II streams, this eases the restrictions for the operator and allows them to harvest more timber.]

- 813.08 Maintenance of Productivity and Related Values. Harvesting practices will first be designed to assure the continuous growing and harvesting of forest tree species by suitable economic means and also to protect soil, air, water, and wildlife resources.
- (1) Where major scenic attractions, highways, recreation areas or other high-use areas are located within a traverse forest land, give special consideration to scenic values by prompt cleanup and regeneration.
 - (2) Give special consideration to preserving any critical wildlife or aquatic habitat.
 - (3) When conducting operations along lakes, bogs, swamps, wet meadows, springs, seeps, or other sources where the presence of water is indicated, protect soil and vegetation from disturbance which would cause adverse affects on water quality, quantity, and wildlife and aquatic habitat. Consider leaving buffer strips.
 - (4) Wherever practical, as determined by the Department, plan clear-cutting operations so that adequate wildlife escape cover is available within one-quarter (1/4) mile.
 - (5) Wherever practical, preserve fruit, nut, and berry producing trees and shrubs.

No change.

RULE 4: ROAD CONSTRUCTION AND MAINTENANCE

Road Construction and maintenance is the major source of sediment from forest practice activities. This section has, therefore, received the most attention and has been extensively revised.

The rules are divided into three separate phases: Road Specifications and Plans, Road Construction, and Road Maintenance. The section on specifications was revised in the current rules to encourage design of roads prior to construction. New roads will be planned to minimize road construction in the streamside protection zone (SPZ). Revised rules stress minimizing cut and fill slopes near streams, and disposing of waste material on stable sites outside the SPZ. New rules were added to both the planning and construction sections to call attention to the Stream Channel Alteration Act, Title 42, Chapter 38, Idaho Code.

A rule which specifically prohibits construction in stream channels was added to the Road Construction section. Also, the timing of construction is addressed. Earthwork is to be postponed during wet periods to prevent washing of sediment into drainage ways. Incorporating frozen materials (soil, ice, snow) or woody materials into road fills is prohibited since those materials will melt or rot creating an unstable and erodible road surface.

The most substantial changes were made to the Road Maintenance section. Lack of road maintenance is a major cause of water quality degradation. Unmaintained drainage systems result in erosion of the road surface or mass erosion when a plugged culvert blows out the road material. The regulations identify three categories of road - active, inactive, and abandoned. Inactive roads are those roads no longer used for active hauling but left open for future entry. They require some regular maintenance or drainage structures. Abandoned roads are to be stabilized for erosion control and blocked to vehicular traffic.

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814.00 ROAD CONSTRUCTION AND MAINTENANCE

814.01 Purpose. Provide for road construction that will ensure adequate protection and maintenance of forest productivity, water quality, fish and wildlife habitat during construction and maintenance.

814.02 Landings. Landings shall be of minimum size and located so as to minimize the risk of material entering streams in harvesting.

814.03 Road Specifications and Plan shall be consistent with good safety practices. Plan each road to the minimum use standards adapted to the terrain and soil materials to minimize disturbance and damage to water quality.

- (1) Use flexible standards to minimize damage to soil and water. Fit the road to the topography.
- (2) Roads will be planned no wider than necessary to accommodate the anticipated use.
- (3) Leave or reestablish areas of vegetation between roads and streams to act as a buffer strip.
- (4) Design culvert installations to prevent erosion of the fill.
- (5) Plan roads to drain naturally by out-sloping, in-sloping with cross-drainage and grade changes where possible.
- (6) Where justified by the volume of traffic, grade, or type of soil over which the road is built, use roadside ditches and relief culverts.
- (7) Provide dips, water bars, and/or cross-drainage on all temporary roads.
- (8) Install relief culverts with a minimum slope of one percent and provide a sediment-catching basin at entrance of each culvert. Use slope protection measures to avoid erosion of fill areas.

CURRENT, ADOPTED 9/9/86

RULE 4. ROAD CONSTRUCTION AND MAINTENANCE

4.a. Purpose. Provide standards and guidelines for road construction and maintenance that will maintain forest productivity, water quality, and fish and wildlife habitat.

4.b. Road Specifications and Plans. Road specifications and plans shall be consistent with good safety practices. Plan each road to the minimum use standards adapted to the terrain and soil materials to minimize disturbances and damage to forest productivity, water quality, and wildlife habitat.

b.i. Plan transportation network to minimize road construction within stream protection zones.

b.ii. Roads shall be planned no wider than necessary to safely accommodate the anticipated use. Minimize cut and fill volumes by designing the road alignment to fit the natural terrain features as closely as possible. Use as much of the excavated material as practical in fill sections.

b.iii. Design to leave or reestablish areas of vegetation between roads and streams.

b.iv. Design embankments and waste so that excavated material may be disposed of on geologically stable sites.

b.v. Design culvert installations to prevent erosion of the fill.

b.vi. Plan roads to drain naturally by out-sloping or in-sloping with cross-drainage and by grade changes where possible.

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- (9) Avoid excessive sidehill cuts and fills near stream channels. Specify cut and fill slopes at or less than the normal angle of repose.
- (10) All culvert installations on streams shall provide for fish passage.

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b.vii. Relief culverts and roadside ditches shall be planned whenever reliance upon natural drainage would not protect the running surface, excavation or embankment.

b.viii. Plan dips, water bars, and/or cross-drainage on roads when necessary.

b.ix. Plan stream crossing to be minimum in number and in compliance with the minimum standards for stream channel alterations under the provisions of Title 42, Chapter 38, Idaho Code.

b.x. Plan minimum cuts and fills particularly near stream channels.

b.xi. Plan all culvert installations on Class I streams to provide fish passage.

b.xii. Plan drainage structures to achieve minimum direct discharge of sediment into streams.

b.xiii. If reuse of existing roads would violate other rules, the operator shall obtain a variance according to Rule 2.a. Consider reuse of existing roads when reuse or reconstruction would result in the least long-run impact on site productivity, water quality, and fish and wildlife habitat.

814.04 Road Construction. Place debris, overburden, and other materials associated with road construction in such a manner as to prevent entry into streams.

- (1) Deposit excess material stable in locations above the highwater mark.
- (2) Clear drainage ways of all debris generated during construction and/or maintenance which potentially interferes with drainage or water quality.
- (3) Where exposed material is potentially unstable, or erodible, stabilize by use of seeding, compacting, riprapping,

3.c. Road Construction. Place debris, overburden, and other materials associated with road construction in such a manner as to prevent entry into streams.

c.i. Roads shall be constructed in compliance with the planning guidelines of Rule 4.b.

c.ii. Deposit excess material and slash on stable locations outside the Stream Protection Zones.

c.iii. Clear drainage ways of all debris generated during con-

benching, mulching, or other suitable means.

- (4) In the construction of road fills, compact material to reduce the entry of water, minimize erosion, and minimize settling of fill material.
- (5) Construct stream crossings to provide a minimum disturbance to banks and existing channels. Remove temporary crossing structures promptly after use and water bar the roads where necessary.
- (6) Install drainage structures as soon as feasible. Adequately cross drain uncompleted roads, which are subject to erosion.
- (7) During and following operations, retain out-slope drainage and remove berms on the outside edge except those intentionally constructed for protection of road grade fills.
- (8) Provide for drainage of quarries to adequately protect against sediment entering into streams.
- (9) No roads will be constructed in stream channels.

struction and/or maintenance which potentially interferes with drainage or water quality.

c.iv. Where exposed material (excavation, embankment, borrow pits, waste piles, etc.) is potentially erodible, and where sediments would enter streams, stabilize prior to fall or spring runoff by seeding, compacting, riprapping, benching, mulching, or other suitable means.

c.v. In the construction of road fills near streams, compact the material to reduce the entry of water, minimize erosion, and settling of fill material. Minimize the amount of snow, ice, or frozen soil buried in embankment. No significant amount of woody material shall be incorporated into fills. Slash and debris may be windrowed along the toe of the fill, but must meet the requirements of Rule 4.d.iii.

c.vi. Construct stream crossing in compliance with minimum standards for stream channel alterations under the provision of Title 42, Chapter 38, Idaho Code.

c.vii. Install drainage structures or cross drain uncompleted roads which are subject to erosion prior to fall or spring runoff.

c.viii. During and following operations on out-sloped roads, retain out-slope drainage and remove berms on the outside edge except those intentionally constructed for protection of road grade fills.

c.ix. Provide for drainage of quarries to prevent sediment from entering streams.

c.x. Roads shall not be constructed in stream channels. Roads that constrict upon a stream channel shall be constructed in compliance with minimum standards for stream channel alterations under provisions of Title 42, Chapter 38, Idaho Code.

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Road Maintenance shall be sufficient to maintain a stable running surface, to keep the drainage system operating, and to protect the quality of the streams.

- (1) When it is the intention of the landowner to discontinue use, the road will be left in such a state as to provide for adequate drainage and soil stabilization.
- (2) Where necessary, clean culvert catch basin inlets and outlets and ditches before and during the rainy season to diminish danger of clogging and the possibility of washouts.
- (3) All cutbanks and fills will be seeded to grass or otherwise treated annually until stabilized.
- (4) Restore road surface crown or out-slope or in-slope all roads prior to the rainy season, depending on drainage system.
- (5) Plan applications and apply road oil or other surface stabilizing material in such a manner as to prevent their entry into streams.

c.xi. Construct cross drains and relief culverts to minimize erosion of embankments. Minimize the time between construction and installation of erosion control devices. Use riprap, vegetative matter, downspouts and similar devices to minimize erosion of the fill.

c.xii. Install relief culverts with a minimum grade of 1 percent.

c.xiii. Earthwork shall be postponed during wet periods if, as a result, erodible materials would enter streams.

c.xiv. In rippable materials, roads shall be constructed with no overhanging banks and any trees that present a potential hazard to traffic shall be felled concurrently with the construction operation.

4.d. Road Maintenance. Conduct regular preventive maintenance operations to avoid deterioration of the roadway surface and minimize disturbance and damage to forest productivity, water quality, and fish and wildlife habitat.

d.i. Sidecast all debris or slide material associated with road maintenance in a manner to prevent their entry into streams.

d.ii. Repair and stabilize slumps, slides, and other erosion features causing stream sedimentation.

d.iii. Active roads. An active road is a forest road being used for hauling forest products, rock and other road building materials. The following maintenance shall be conducted on such roads.

(a) Culverts and ditches shall be kept functional.

(b) During and upon completion of seasonal operations, the road surface shall be crowned, out-

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- (6) Sidecast debris or slide material associated with road maintenance in such a manner as to prevent their entry into streams.

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sloped, in-sloped or water barred, and berms removed from the outside edge except those intentionally constructed for protection of fills.

(c) The road surface shall be maintained as necessary to minimize erosion of the subgrade and to provide proper drainage.

(d) If road oil or other surface stabilizing materials are used, apply them in such a manner as to prevent their entry into streams.

d.iv. Inactive Roads. An inactive road is a forest road no longer used for commercial hauling but maintained for access (e.g., for fire control, forest management activities, recreational use, and occasional or incidental use for minor forest products harvesting). The following maintenance shall be conducted on inactive roads.

(a) Following termination of active use, ditches and culverts shall be cleared and the road surface shall be crowned, out-sloped or in-sloped, water barred or otherwise left in a condition to minimize erosion. Drainage structures will be maintained thereafter as needed.

(b) The roads may be permanently or seasonally blocked to vehicular traffic.

d.v. Abandoned Roads. An abandoned road is not intended to be used again. No subsequent maintenance of an abandoned road is required after the following procedures are completed:

(a) The road is left in a condition suitable to control erosion by out-sloping, water barring, seeding, or other suitable methods.

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(b) Ditches are cleaned.

(c) The road is blocked to vehicular traffic.

(d) The department may require the removal of bridges and culverts except where the owner elects to maintain the drainage structures as needed.

RULE 5: REFORESTATION

No major changes were made in the current rules in the Reforestation section. There are some minor editorial changes which are shown by comparison of the two sets of rules.

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815.00 REFORESTATION

RULE 5. REFORESTATION

815.01 Purpose. The purpose of these rules is to provide for reforestation that will maintain a continuous growing and harvesting of forest tree species by describing the conditions under which reforestation will be required, specifying the minimum number of trees per acre, the maximum period of time allowed after harvesting for establishment of forest tree species, and providing erosion preventative measures on soils which have become exposed as a result of harvesting. However, an acreage exemption from reforestation may be established except that on such land exempted, within one year following harvesting, some form of vegetative cover shall be required sufficient to provide continuing soil productivity and stabilization.

No change.

815.02 Reforestation will be required on all non-exempted forest land within five growing seasons after a forest harvesting practice reduces the stocking of acceptable tree species below the levels described in 815.03.

No change.

815.03 Stocking will be deemed acceptable immediately following harvest if the following number per acre of trees by average size of acceptable species are reasonably well-spaced over the area affected by forest harvesting.

No change.

ACCEPTABLE MINIMUM STOCKING -
PONDEROSA PINE TYPE

Average Size Class DBH (1) - Inches	Average Number Trees Per Acre	Average Spacing in Feet
2.9 and less	150	17 X 17
3.0 and 4.9	105	21 X 21
5.0 to 7.9	55	30 X 30
8.0 to 10.9	30	38 X 38
11.0 and greater	20	47 X 47

(1) DBH = Average Diameter (outside of the bark) of a tree 4.5 feet above mean ground level.

ACCEPTABLE MINIMUM STOCKING -
MIXED FOREST TYPE

Average Size Class DBH - Inches	Average Number Trees Per Acre	Average Spacing in Feet
2.9 and less	200	15 X 15
3.0 and 4.9	110	20 X 20
5.0 to 7.9	60	27 X 27
8.0 to 10.9	35	35 X 35
11.0 and greater	20	47 X 47

815.04 Acceptable species shall consist of any of the species normally marketable in the region, including Christmas trees, which are suitable for the specific site requiring reforestation.

Eliminated since defined in Definition section.

815.05 Supplemental Reforestation (seeding and planting) may be required if after three growing seasons from the date of harvest operation an inspection by the Department determines the stocking levels do not meet the standards in 815.03. Supplemental reforestation will not be required unless it is economically feasible under existing site conditions. If required, seeding and/or planting must be completed before the end of the fifth growing season following the time of harvest, except that the Director shall grant an extension of time if suitable seeds or seedlings are not available or if weather or other conditions beyond the landowner's control interfere.

5.d. Supplemental Reforestation (seeding and/or planting) may be required if after three growing seasons from the date of harvest operations an inspection by the department determines the stocking levels do not meet the standards in Rule 5.c. Supplemental reforestation will not be required unless it is economically feasible under existing site conditions. If required, seeding and/or planting shall be completed before the end of the fifth growing season following the time of harvest, except that the director shall grant an extension of time if suitable seeds or seedlings are not available or if weather or other conditions interfere.

815.06 The following classes of land will be exempted from reforestation requirements except as provided in 815.07.

5.e. Classes. The following classes of land will be exempted from reforestation requirements.

(1) Non-commercial forest land, i.e., land having a site quality incapable of economically growing a commercial quality stand of trees of acceptable species.

e.i. Non-commercial forest land, i.e., land having a site quality incapable of economically growing a commercial quality stand of trees of acceptable species.

(2) Land on which the owner has stated his intention to convert to another use. This may include land converted to

e.ii. Land on which the owner has stated his intention to convert

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permanent or semi-permanent roads used in a forest practice.

- (3) Ownerships of 10 acres or less in one contiguous tract.
- (4) Forest practice on larger ownerships which will affect 10 acres or less during a continuous period of five years.

815.07 On lands excepted under 815.06 where reforestation is not being planned, but where harvesting operation removes 75 percent or more of the natural vegetative cover on areas larger than one acre, some form of revegetation or other acceptable practice will be required within one year sufficient to provide continuing soil productivity and stabilization.

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to another use. This may include land converted to roads used in a forest practice.

e.iii. Ownerships of ten acres or less in one contiguous tract.

e.iv. Forest practice on larger ownerships which will affect a total of ten acres or less during a period of five consecutive years.

5.f. On lands exempted under Rule 5.e.i., iii. and iv. where reforestation is not being planned, some form of vegetative cover shall be established within one year on disturbed areas larger than one acre sufficient to provide continuing soil productivity and stabilization.

RULE 6: USE OF CHEMICALS

The previous Rules and Regulations did not reflect recent legislation on the storage, handling and application of chemicals in a forest environment. As a result, some of the rules were not in agreement with state and federal laws. In addition, the regulations were incomplete by not incorporating or referencing other regulatory legislation.

RELEVANT LEGISLATION

The following is a list of federal legislation that was reviewed for regulations governing the use of chemicals in the forest environment:

- Federal Water Pollution Control Act of 1972, as amended by Clean Water Act of 1977.
- Federal Insecticide, Fungicide, and Rodenticide Act.
- Federal Environmental Pesticides Control Act.
- Solid Waste Disposal Act.
- Federal Clean Air Act.
- Occupational Safety and Health Act.
- Toxic Substances Control Act of 1977.
- Safe Water Drinking Act.
- Hazardous Substances Act.

In addition, the following Idaho statutes were reviewed:

- Idaho Code, Section 22-3401 to 3425, Idaho Pesticide Law and its rules and regulations.
- Idaho Code, Section 38-601 to 603, Forest Insects, Pests and Disease.
- Idaho Code, Section 39-103 to 118, Chapter on the Department of Health and Welfare.
- Idaho Code, Section 39-3601, Water Pollution Abatement.

CURRENT REGULATIONS

The Rules and Regulations were modified to reflect federal and state legislation. The approach was to reference other state statutes that regulate the handling, storage and application of chemicals. The primary state law that regulates the application of chemical pesticides is the Idaho Pesticide Law (IPL) (Title 22, Chapter 34, Idaho Code). Only in a few instances were specific Rules and Regulations from the Idaho Pesticide Law incorporated into the Forest Practices Act regulations. Since there are relatively few notifications for use of chemicals, it is suggested that the Idaho Department of Lands provide the Rules and Regulations for the IPL to those individuals upon receipt of notification. This approach will limit the amount of duplication required in the IFPA Rules and Regulations.

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816.00 USE OF CHEMICALS AND FERTILIZERS

816.01 Purpose. Chemicals perform an important function in the growing and harvesting of forest tree species. The purpose of these rules is to regulate handling, storage and application of chemicals in such a way that the public health and aquatic and terrestrial habitats will not be endangered by contamination of streams or other bodies of water.

816.02 Maintenance of Equipment in Leakproof Condition. Equipment used for transportation, storage, or application of chemicals shall be maintained in leakproof condition. If, in the Director's judgment, there is evidence of chemical leakage, he shall have the authority to suspend the further use of such equipment until the deficiency has been corrected.

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RULE 6. USE OF CHEMICALS

6.a. Purpose. Chemicals perform an important function in the growing and harvesting of forest tree species. The purpose of these rules is to regulate handling, storage and application of chemicals in such a way that the public health and aquatic and terrestrial habitats will not be endangered by contamination of streams or other bodies of water. In addition, the application of chemical pesticides is regulated by Rules and Regulations of the Idaho Pesticide Law (Title 22, Chapter 34, Idaho Code).

6.b. Licensing. Any person acting as a commercial applicator or operator, limited applicator, or private applicator applying restricted-use pesticides, shall comply with the licensing requirements of the Idaho Pesticide Law Rules and Regulations. This requirement does not pertain to individuals applying non-restricted pesticides on their own property.

6.c. Maintenance of Equipment

c.i. Equipment used for transportation, storage or application of chemicals shall be maintained in leakproof condition. If, in the director's judgment, there is evidence of chemical leakage, he shall have the authority to suspend the further use of such equipment until the deficiency has been corrected.

c.ii. The storage of chemical pesticide shall also be conducted in accordance with the requirements of the Idaho Pesticide Law Regulations.

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816.03

Mixing. When water is used in mixing chemicals:

- (1) Provide an air gap or reservoir between the water source and the mixing tank.
- (2) Use uncontaminated pumps, hoses, and screens.
- (3) Mixing and landing areas:
 - a. Mix chemicals and clean tanks and equipment only where spills would not enter any water source or streams.
 - b. Landing areas will be located where spillage of chemicals will not cause them to become contaminated. If chemical is spilled, immediate procedures will be taken to contain or neutralize it.

816.04

Aerial Application.

- (1) Leave at least one swath width (minimum 100 feet) untreated on each side of all streams and other areas of open water. When applying pelletized fertilizer, leave a minimum of 50 feet untreated on each side of all streams and open water.
- (2) Use a bucket or spray device capable of immediate shutoff.
- (3) Shut off chemical application during turns and over open water.
- (4) Minimize direct entry.

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6.d. Mixing.

d.i. When water is used in mixing chemicals:

(a) Provide an air gap or reservoir between the water source and the mixing tank.

(b) Use uncontaminated tanks, pumps, hoses and screens.

ii. Mixing and landing areas:

(a) Mix chemicals and clean tanks and equipment only where spills will not enter any water source or streams.

(b) Landing areas shall be located where spilled chemicals will not enter any water source or stream.

6.e. Aerial Application.

e.i. Leave at least one swath width (minimum 100 feet) untreated on each side of all Class I streams, flowing Class II streams and other areas of open water. When applying pelletized fertilizer, leave a minimum of 50 feet untreated on each side of all Class I streams, flowing Class II streams, and other areas of open water.

e.ii. Use a bucket or spray device capable of immediate shutoff.

e.iii. Shut off chemical application during turns and over open water.

e.iv. Aerial application of chemical pesticides shall also be conducted according to the Idaho Pesticide Law Rules and Regulations.

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816.05 Ground Application with Power Equipment.

- (1) Leave at least 25 feet untreated on each side of all streams. When applying fertilizer, leave at least 10 feet untreated on each side of all streams.
- (2) Avoid direct entry of chemicals into any water source or stream.
- (3) Avoid exceeding intended or allowable dosages.

6.f. Ground Application with Power Equipment.

f.i. Leave at least 25 feet untreated on each side of all Class I streams, flowing Class II streams and areas of open water. When applying fertilizer, leave at least 10 feet untreated on each side of all streams and areas of open water.

816.06 Hand Application.

- (1) Apply only to specific targets; such as, a stump, burrow, bait, or trap.
- (2) Keep chemicals out of all water sources or streams.

6.g. Hand Application.

g.i. Apply on to specific targets; such as, a stump, burrow, bait, or trap.

g.ii. Keep chemicals out of all water sources or streams.

816.07 Limitations on Applications. Chemicals shall be applied in accordance with all limitations and instructions printed on the container registration labels and others established by regulation of the Director.

6.h. Limitations on Applications.

h.i. Chemicals shall be applied in accordance with all limitations and instructions printed on the container registration labels and others established by regulation of the director.

h.ii. Do not exceed intended or allowable dosages.

h.iii. Prevent direct entry of chemicals into any water source or stream.

816.09 Daily Records of Chemical Applications.

- (1) When insecticide or herbicide sprays are applied on forest land, the operator shall maintain a daily record or spray operations which includes:
 - a. Name of monitor or name of applicator (pilot or ground applicator).
 - b. Location of project (section, township, range and county).

6.i. Daily Records of Chemical Applications.

i.i. When insecticide or herbicide sprays are applied on forest land, the operator shall maintain a daily record of spray operations which includes:

i.(a) Date and time of day of application.

i.(b) Name and address of owner of property treated.

- c. Air temperature (hourly).
- d. Wind velocity and direction (hourly).
- e. Contractor's name and pilot's name when applied aerially. Contractor's name and/or employer's name for ground application.
- f. Insecticides or herbicides used including name, mixture, application rate and carrier used.

i.(c) Purpose of the application (control of vegetation, control of Douglas-fir tussock moth, etc.).

i.(d) Contractor's name and pilot's name when applied aerially. Contractor's name and/or applicator's name for ground application.

i.(e) Location of project (section, township, range and county).

i.(f) Air temperature (hourly).

i.(g) Wind velocity and direction (hourly).

i.(h) Insecticides and herbicides used including name, mixture, application rate, carrier used and total amounts applied.

- (2) Whenever rodenticides or fertilizers are applied, the operator shall maintain a daily record of such application which includes a, b, and e above and the name of the chemical and application rate.
- (3) The records required in (1) and (2) above shall be kept for 3 years.
- (4) The records required in (1) and (2) above shall not be required for ground application on less than 20 acres.

6.i.ii. Whenever rodenticides or fertilizers are applied, the operator shall maintain a daily record of such application which includes a, b, d, and e above and the name of the chemical and application rate.

6.i.iii. The records required in i and ii above shall be kept for three years.

6.i.iv. The records required in i and ii above shall not be required for ground application on less than 20 acres.

816.08

Container Disposal. Chemical containers shall be either (1) removed from the forest and disposed of, or (2) removed and cleaned for reuse in a manner consistent with applicable regulations of a State or local health department or (3) buried or burned in a manner approved by the Director.

6.i. Container Disposal. Chemical containers shall be (1) removed from the forest and disposed of in a manner approved by the director in accordance with applicable local, state and federal regulations, or (2) removed and cleaned for reuse in a manner

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816.11 Reporting Spills. All potentially damaging chemical accidents and spills shall be reported immediately to the Director

816.10 Applicator's Responsibility to Determine Whether or Not Chemicals are Contaminating Streams. Whenever chemicals are applied to forest land, it is the responsibility of the applicator to determine whether or not chemicals are contaminating streams or other bodies of water.

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consistent with applicable regulations of a state or local health department.

6.k. Spills shall be reported and appropriate cleanup action taken in accordance with applicable state and federal laws and rules and regulations.

k.i. All potentially damaging chemical accidents and spills shall be reported immediately to the director.

k.ii. If chemical is spilled, appropriate procedures shall be taken immediately to contain or neutralize it.

k.iii. It is the applicator's responsibility to collect, remove, and dispose of the spilled material in a manner approved by the director.

6.l. Applicator's Responsibility to Report Contamination. Whenever chemicals are applied to forest land, it is the responsibility of the applicator to report suspected chemical contamination of streams or other bodies of water immediately to the director.

RULE 7: SLASHING MANAGEMENT

No major changes have been made to the Slash Management Rules. Minor editorial changes can be determined by comparison of the two sets of rules.

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817.00 SLASHING MANAGEMENT

RULE 7. SLASHING
MANAGEMENT. No Change.

817.01 Purpose. To provide for management of slashing and fire hazard resulting from harvesting, forest management, or improvement of forest tree species, or defoliation caused by chemical applications in that manner necessary to protect reproduction and residual stands, reduce risk from fire, insects and disease or optimize the conditions for future regeneration of forest tree species and to maintain air and water quality, fish and wildlife habitat.

817.02 Fuels and debris resulting from a forest practice involving removal of a commercial product shall be managed (a) as set forth in the Idaho Forestry Act, Title 38, Chapters 1 and 4, and the rules and regulations pertaining to forest fire protection.

No change.

817.03 Fuels and debris resulting from a forest practice where no commercial product is removed shall be managed in a manner as hereinafter designated under authority of the Idaho Forest Practices Act, Title 38, Chapter 13, Idaho Code.

7.c. Fuels and debris resulting from a forest practice where no commercial product is removed shall be managed in a manner as hereinafter designated under authority of the Idaho Forest Practices Act, Title 38, Chapter 13, Idaho Code.

- (1) Within ten (10) days or a time mutually agreed upon following receipt by the Department of the "Notification of Forest Practices" as provided in Rule 812.05, the Department will make a determination of the potential fire hazard and hazard reduction and/or hazard offsets, if any, needed to reduce, abate, or offset the fire hazard. Such determination will be based on a point system found in Rule 817.03(5).
- (2) The operator, timber owner and landowner will be notified in writing of the determination made in paragraph (1) above (on forms provided by the Department) and of the hazard reductions and/or hazard offsets, if any, that must be accomplished by the operator, timber owner or landowner. The notification will specify a reasonable time period not to exceed twelve (12) months from the

c.i. Within ten (10) days or a time mutually agreed upon following receipt by the department of the "Notification of Forest Practices" as provided in Rule 2.e., the department shall make a determination of the potential fire hazard and hazard reduction and/or hazard offsets, if any, needed to reduce, abate or offset the fire hazard. Such determination shall be based on a point system found in Rule 7.c.v.

c.ii. The operator, timber owner and landowner shall be notified in writing of the determination made in paragraph i. above (on forms provided by the department) and of the hazard reductions and/or hazard off-

date the Forest Practice commenced in which to complete the hazard reduction and will specify the number of succeeding years that onsite improvements or extra protection must be provided.

- (3) A release of all obligations under Rule 817.03 will be granted in writing on forms provided by the Department when the hazard reduction and/or hazard offsets have been accomplished. When hazard offsets are to be accomplished during succeeding years, the release will be conditioned upon the completion of the required hazard offsets. Notification of release will be mailed to the operator, timber owner, and landowner within seven days of the inspection by the Department will be made within ten days of notification by the operator, timber owner, or landowner unless otherwise mutually agreed upon.
- (4) If the Department determines upon inspection that the hazard reduction and/or hazard offsets have not been accomplished within the time limit specified in Rule 817.03(2), extensions of time, each not to exceed three months, may be granted if the Director determines that a diligent effort has been made and that conditions beyond the control of the party performing the hazard reduction and/or hazard offsets prevented completion. If an extension is not granted the Department will proceed as required in Sections 38-1307 and 38-1308, Idaho Code (Idaho Forest Practices Act).
- (5) For the purpose of determining the potential fire hazard and the appropriate hazard reduction and/or hazard offsets, a point system using the following rating guides will be used by the Department. A value of 80 points or less for any individual forest practice under Rule 817.03, as determined by the Department, will be sufficient to release the operator, timber owner and landowner of all further obligations under Rule 817.03. Total points of the proposed forest practice will be determined from

sets, if any, that must be accomplished by the operator, timber owner or landowner. The notification shall specify a reasonable time period not to exceed twelve (12) months from the date the forest practice commenced in which to complete the hazard reduction and shall specify the number of succeeding years that onsite improvements or extra protection must be provided.

c.iii. A release of all obligations under Rule 7.c. shall be granted in writing on forms provided by the department when the hazard reduction and/or hazard offsets have been accomplished. When hazard offsets are to be accomplished during succeeding years, the release shall be conditioned upon the completion of the required hazard offsets. Notification of release shall be mailed to the operator, timber owner and landowner within seven days of the inspection by the department. Inspections by the department shall be made within ten days of notification by the operator, timber owner or landowner unless otherwise mutually agreed upon.

c.iv. If the department determines upon inspection that the hazard reduction and/or hazard offsets have not been accomplished within the time limit specified in Rule 7.c.ii., extensions of time, each not to exceed three months, may be granted if the director determines that a diligent effort has been made and that conditions beyond the control of the party performing the hazard reduction and/or hazard offsets prevented completion. If an extension is not granted the department shall proceed as re-

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Tables I and II. If the total points are greater than 80, modification of the thinning practice to reduce points may be made as determined by Tables I and II, slash hazard offsets may be scheduled to reduce points as determined by Table III or a combination of these options may be used to reduce the hazards to a point total of 80 or less. to the operator's, timber owner's and landowner's preference in selecting the options to reduce the points to 80 or less.

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quired in Section 38-1307, Idaho Code (Idaho Forest Practices Act).

APPENDIX B

IMPLEMENTATION OF BEST MANAGEMENT PRACTICES ON STATE AND PRIVATE LANDS

INTRODUCTION

The BMPs presented in Appendix A cannot effectively protect water quality unless they are complemented by an efficient administrative program to encourage their application and to provide for enforcement or corrective action when they are not applied. The Idaho Department of Lands is responsible for administration of the Idaho Forest Practices Act on state and private lands. Certain responsibilities, including adopting rules, approving expenditures to repair damage caused by non-compliance, and hearing appeals, have been assigned to the Board of Land Commissioners.

This chapter examines the administration of the IFPA and describes administrative changes, manpower, and training necessary for effective implementation. Consideration is given to:

- Notification procedures.
- Emergency Forest practices.
- Spillage of petroleum products.
- Division of the state into regions.
- Inspection procedures and schedules.
- Manpower.
- Administrative organization.
- Enforcement and appeals.
- Training and education.

Recommendations concerning each of these areas of administration are presented at the end of this chapter and represent the minimal charges which are considered essential to the success of the program.

PROCEDURES ON STATE-OWNED LANDS

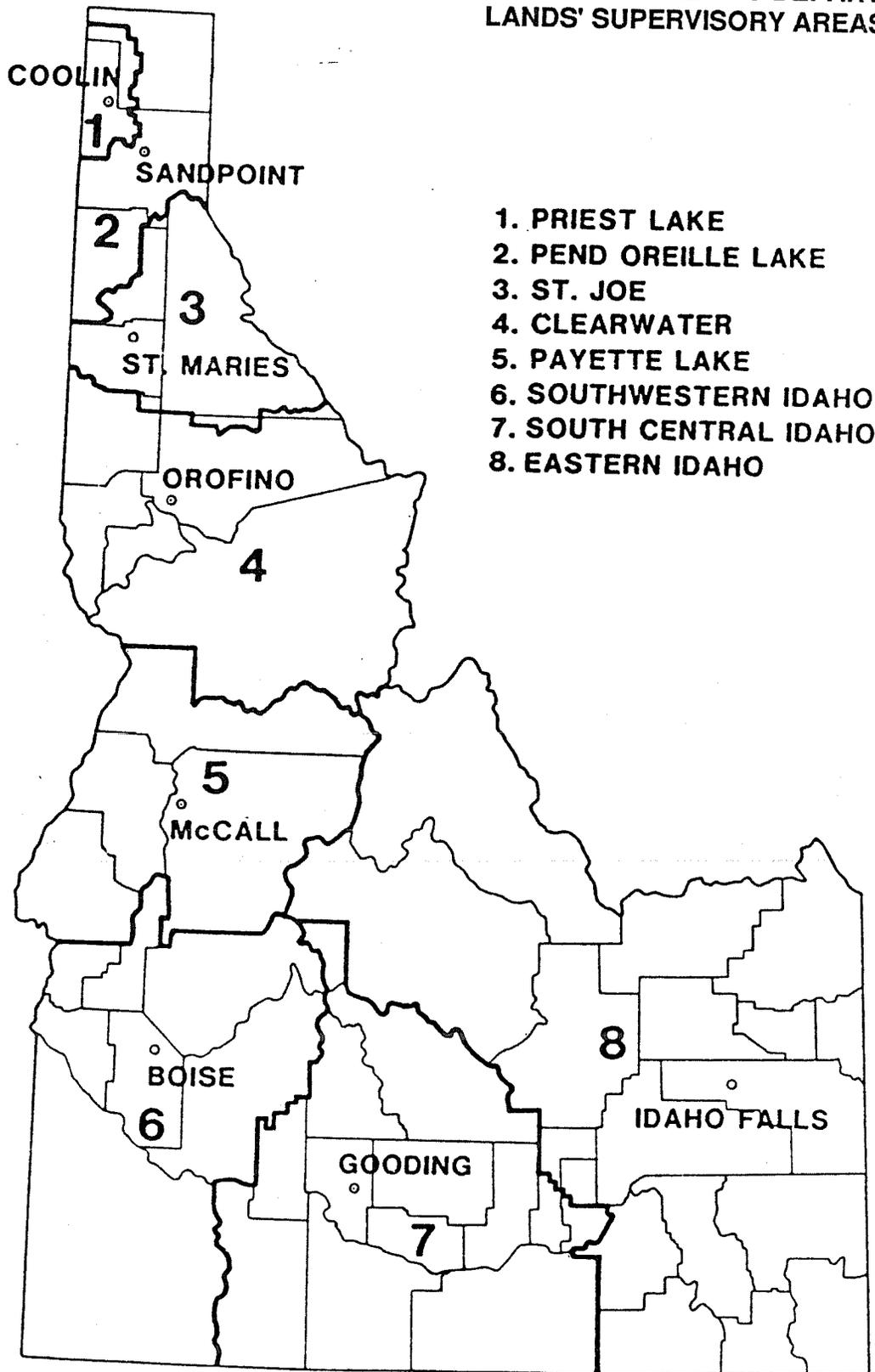
State lands silvicultural practices are planned and executed by field offices consisting of 8 Administrative Areas. These are under an Area Supervisor, responsible for all Department of Lands' business in the Area. The Areas are shown in Figure 1.

The Area personnel are under advisory and line/staff direction from the various Bureaus and Executive Staff of the Department. The three pertinent Bureaus are located in the Coeur d'Alene Field Headquarters. They are Bureau of Forest Management, Bureau of Forest Fire Protection and Bureau of Private Forestry.

Relative to forestry operations and forest practices compliance, the Bureau of Forest Management provides the direction to the field offices. The Bureau of Private Forestry provides advisory assistance to forest management and starting in 1986 performs internal audits of forest practices compliance on state-owned lands.

The Bureau of Private Forestry is responsible for staff and line direction to the field offices on administration and enforcement of the IFPA on private lands. The private forestry staff directs other programs in assistance to private forest owners, forest pest management and liaison to in-state and regional forestry interests and the state and federal agencies.

FIGURE 1: LOCATION OF IDAHO DEPARTMENT OF LANDS' SUPERVISORY AREAS



State lands timber sales and other silvicultural operations are planned one to five years in advance. Sales finalized for marketing are summarized in June for the following fiscal year. At that time, a book is distributed known as the state-wide prospectus of state timber sales. A few small salvage and direct sales may be made by each Area for emergency salvage, special products and insect or disease losses and are not planned for in the sale prospectus.

All state sales have the Forest Practices Act requirements and its rules incorporated by reference in the contract forms. Specific contract language prescribes the special operating terms for hydraulic structures, stream protection, road building, and other special contractual requirements.

The purchaser or operator must secure a notification prior to commencing operations. They are also required to go over the ground with the forester in charge of the sale to acquaint themselves with the special operating requirements, SPZ precautions, road plans, etc.

During operations, the forester in charge and the area supervisor make frequent inspections of the operations. The operations are also inspected on a random basis by the Bureau of Forest Management staff which often include the assistant director and director of the department.

CURRENT DIRECTION ON FOREST PRACTICES

In July 1985 the Director of the Department of Lands, with concurrence of the Land Board, and encouragement from the Forest Industry Council, ordered a new emphasis on forest practice regulations. This new policy was in part a response to the March 1985 report "Silvicultural Non-Point Source Task Force" by the Idaho Department of Health and Welfare, Division of Environment.

Essentially, the DOE report found that forest practice compliance on state owned lands needed to be improved. It also found that the program was grossly underfunded as applied to private lands. This was predictable as both legislative appropriation and executive direction in the spring of 1981 was to reduce the forest practice program from five FTEs to less than one full time equivalent statewide. The direction and funding was to limit Department of Lands' forest practice activity on private operations to investigation of serious complaints, response to requests for forest practice field assistance, and inspections only on a spare time basis.

The new policy, reversing the policy of 1981, had evolved into a three-pronged effort by the end of 1985.

1. Operations on state owned land will be conducted to meet or exceed forest practice rules and regulations. The objective for state operations is to serve as an example and display of proper forest practices which meet or exceed the minimum. State operations will be inspected by staff outside of the Bureau of Forest Management.
2. The 10 state-run Forest Fire Protective Districts have 20 full-time employees who will increase their commitment to inspect, observe, report and assist in enforcement of forest practices on private lands.
3. The department has established and is rigorously pursuing continued funding for a full-time Forest Practices Act Coordinator or Section Supervisor.

The new policy, without an increase in appropriations (except for the Forest Practices Act Coordinator position) will develop the following estimated manpower on Forest Practices Administration.

6 Forest Practices Advisors @ 60%	3.6 FTEs
20 Fire Wardens and Assistant Wardens @10%	2.0 FTEs
1 Forest Practice Coordinator @ 90%	0.9 FTEs
1 Chief-Bureau of Private Forestry @ 50%	0.5FTEs
1 Asst. Director @ 10%	<u>0.1 FTEs</u>
	7.1 FTEs

The new policy has also changed the role of the Woodland Foresters. Their working title has been changed to Forest Practice Advisors and 60% of their time must be on forest practice advisory field visits, educational work, operations inspections or enforcement efforts.

Beginning in May of 1986, a department internal audit of forest practices was initiated by the director. Randomly selected operations are inspected by the Bureau of Private Forestry by at least 3 persons not involved in the forest management program. These are done with a week or less of notice to the area personnel. Within a few days after the field inspection the forest practice inspection forms with a narrative report by the Chief, Bureau of Private Forestry are sent to the assistant director, the Bureau Chief of Forest Management, and the area supervisor. These audits will be conducted annually; summary of findings will be sent to IDHW.

Eighteen forestry operation audits were completed in 1986. The random selections were directed to operations around Class I and II waters. The audits found a high degree of compliance, meeting and in most cases exceeding the IFPA requirements. There was one case of minor damage to a Class I stream caused by a dozen or so tree tops of slash blocking the channel, and several instances of minor damage to Class II streams with no impact expected in downstream Class I waters.

NOTIFICATION PROCEDURES

The IFPA requires that land or timber owners notify the Idaho Department of Lands before starting a harvest operation on state or private lands. A separate notice, as shown in Figure 2, is required for each forest practice, and the operator must inform the Department of any departures from the original plan.

Each notice is valid for two years, after which time it must be renewed annually. When the original notice indicates that the operation will continue beyond the two-year period, the operator will contact the IDL 30 days prior to the expiration date and obtain a renewal. The IDL will send out the renewal to the landowner and timber owner within 15 days as now provided by a 1986 Legislative change of the Act.

A notice is required for the following forest practices:

1. Timber harvesting including felling, bucking, yarding, decking, loading, and hauling; road construction or improvement within the harvest area including items listed under 2.
2. Road construction or reconstruction of existing roads including installation or replacement of bridges, culverts or structures which convey streams not within forest tree harvest areas.
3. Application of insecticides, herbicides, rodenticides, and fertilizer for the purpose of growing or managing forest tree species.
4. Pre-commercial thinning.
5. Reforestation.

No notice is required for:

1. Routine road maintenance, recreational uses, livestock grazing, cone gathering, culture and harvest of Christmas trees on lands
2. Non-commercial cutting and removal of forest tree species by a person for his own personal use.
3. The clearing of forest land for conversion to non-forest use.
4. A woodland management plan prepared by an SCD or an IDL Forest Practice Advisor now only serves as a notice when filed with the IDL - 1986 legislative change to the act.

FIGURE 2: IDL FORM FOR NOTIFICATION OF FOREST PRACTICES

NOTIFICATION OF FOREST PRACTICE No 0002 -N

BY THIS NOTICE _____ Name (please print) _____ phone _____

of _____ mailing address _____ city _____ state _____ zip _____

hereinafter called operator, has complied with the provisions of Idaho Code section 38-1306 requiring notification of intent to conduct a forest practice(s):

- 1. () Harvesting of forest tree species including on-site road construction/maintenance
- 2. () Road construction/maintenance off the harvesting site
- 3. () Reforestation (greater than 10 contiguous acres)
- 4. () Use of chemicals or fertilizers in growing or managing forest tree species
- 5. () Management of slashings resulting from harvest, management or improvement of forest tree species

This notification shall cover the following lands:

Subdivision	Sec.	Twp.	Rge.	County
-------------	------	------	------	--------

Approximate date work will begin _____ Approximate date work will finish _____

Name and address of landowners _____
_____ phone _____

Name and address of timber owner _____
_____ phone _____

The following questions are to help Department of Lands evaluate the potential for water quality impacts.

- 1. Streams on or directly adjacent to lands? Class I _____ Class II _____ Unknown _____
- 2. Slopes over 45% on lands to be affected? Yes _____ No _____ Unknown _____
- 3. Soils are unstable or highly erodible? Yes _____ No _____ Unknown _____

Operator signature _____ Date _____

IDL Area/District Acknowledgement _____ Date _____

Since notification of forest practice was added to the already required slash compliance form, the procedure of notifying IDL was well accepted. Some notices, however, have been received by IDL well after harvesting operations were underway. Occasionally the first "notification" was provided by IDL field personnel who observed a load of logs coming out of the woods from an unreported operation, a procedure tolerated under the slash program. Follow-up has often shown the operator was unfamiliar with the IFPA and/or the notification procedure. Under the new policy and emphasis, failure to file a notice before commencing operations will result in a notice of violation.

Advance notice of a proposed harvest is important to support state goals minimizing water quality degradation. If the harvest area is likely to create an impact on the water and/or soil resources, prior notification will afford the forester lead time to counsel the operator. Time spent in advising the forest operator is less costly than repairing damages.

HYDRAULIC STRUCTURES

Notification is required for the installation or improvement of hydraulic structures associated with harvesting or road construction undertaken in support of harvesting. This installation or improvement of hydraulic structures may be either inside or outside the boundary of the harvesting operations. This requirement appears to be a duplication of the Stream Channel Alteration Act (Idaho Code, Title 42, Chapter 38) and inspection of such hydraulic structures by IDL personnel could lead to a jurisdictional conflict with the Idaho Department of Water Resources.

Rules for the Stream Channel Alteration Act have been in effect since June of 1973 to protect stream channels and their natural environments. They were revised October 15, 1974 to reflect governmental reorganization. Minimum standards intended to expedite processing of permits for ordinary alterations were published in June 1975 and updated as of June 1978. The Stream Channel Alteration Act is not applicable to intermittent streams. On these streams, the IFPA rules provide the protection standards.

The rules for stream channel alteration are far more definitive than the IFPA Rules and Regulations. Applications for a stream channel alteration permit are processed through regional offices of the Idaho Department of Water Resources (IDWR). Some sites are visited prior to granting a permit, but the majority are granted on conditional approval subject to compliance with the minimum standards for stream channel alterations. It is the responsibility of the IDWR to ensure that installation or replacement of bridges, culverts or related hydraulic structures are accomplished in such a manner that the alteration does not pose a hazard to the stream channel or its environment.

Since a stream channel alteration permit issued by IDWR is presently required for stream channel installations or improvements of bridges, culverts or similar hydraulic structures referenced in 2.a.ii. of the IFPA Rules and Regulations, a copy of the stream channel alteration permit should be available to IDL field personnel. IDL personnel are acquainted with the Department of Water Resources' minimum Standards for Stream Channel Alterations and frequently initiate the permit request by private forest operators. They are available to review and comment on the propriety of the installation as a service to their clientele.

Cooperative agreements will be used to provide a more formal understanding of IDL involvement with inspection of stream channel alterations undertaken in conjunction with forest practices on state and private lands. The statutory authority for enforcement of the Stream Channel Alteration Act would remain with the IDWR.

Timber harvesting alone has little direct interface with the Stream Channel Alteration Act. In a few isolated instances, harvesting practices might constitute a stream channel alteration. It would be more appropriate to regulate these occurrences through the IFPA Rules and Regulations than to attempt to apply the Stream Channel Alteration Act. However, the necessary road building to access a site often involves bridge, culvert, arch or rip-rapping construction and these practices should be regulated by IDWR.

ROUTINE ROAD MAINTENANCE

The "notification" exemption granted for routine road maintenance is acceptable from an administrative point of view in that considerable paperwork and clerical staff are eliminated. However, the "notification" exemption is not indicative of the impact roadway maintenance practices have on water quality.

Considerable soil disturbance is often associated with roadway maintenance. Similarly, it is essential that drainage structures be properly maintained to achieve the results for which they were installed. Improper roadway maintenance techniques and schedules have the potential to completely obliterate the level of water quality achieved by regulating logging road construction practices. State, county and road district operations in small watersheds should be of particular concern.

CONVERSION TO NON-FOREST USE

As stated in Section 38-1312 of the IFPA, "this act does not prevent the conversion of forest land to any other use." Presently a landowner who elects to convert to a non-forest use need not inform the IDL of his intentions or actions (Rule 2.g.iv.). The IFPA Rules and Regulations do require, however, that the conversion be accomplished within a five-year period, and that the director of IDL decide whether or not conversion has been accomplished based upon evidence of actual use and/or the presence of improvements necessary for the intended use (Rule 2.b.).

Although the IFPA does not prevent conversion to non-forest use it should provide for soil stabilization and erosion control during the transition to the other land use. The current language of the IFPA and the Rules and Regulations do not accomplish this purpose. In fact, the current rules allow a major loophole for the owner/operator to avoid either reforestation or soil stabilization by simply stating their purpose is land conversion.

The rules should be changed to require a notification for land conversion (i.e., delete rule 2.g.iv.). Section 5 of the rules then needs to be modified to clearly require establishment of some form of vegetative cover within one year on disturbed areas.

NOTIFICATION OF FOREST PRACTICES

Notification procedures relating to the application of chemicals and fertilizers, precommercial thinning and reforestation appear administratively reasonable. Exclusions granted for recreational uses, livestock grazing, cone gathering, culture of Christmas trees, and non-commercial cutting and removal of tree species appear well founded.

EMERGENCY FOREST PRACTICES

Notification is not required before starting a forest practice necessitated by such catastrophic events as fire, flood, windthrow, earthquakes, etc. Section 2.h. of the rules provide for the exercise of reasonable action on the part of the operator, timber owner or landowner to minimize any further damage to forest lands. The provision requires notification within a 48-hour period. This emergency provision is not a waiver of the IFPA Rules and Regulations.

SPILLAGE OF PETROLEUM PRODUCTS

The rules and regulations (2.j.) require that adequate precautions be taken to prevent leakage or accidental spillage of petroleum products that may enter streams. In the event of any spillage or leakage, the operator is to immediately notify IDL. The operator or IDL should also notify IDHW in the event the spillage involves a watercourse.

The probability of accidental petroleum spills or leaks is quite low. However, the potential for damage to aquatic communities or water supplies is high. Emphasis should be placed on prevention and reporting of accidental spills by the operator.

DIVISION OF STATE INTO REGIONS

The IFPA includes a provision for tailoring rules and regulations to fit regional situations under Section 38-1304 which states: "The Board shall adopt rules for forest regions establishing minimum standards for the conduct of forest practices on forest lands."

For the purpose of administering the IFPA to differing regional circumstances the state is divided into northern and southern forest regions by the Salmon River. Each is further classified according to forest type, i.e., ponderosa pine and mixed species.

Conceptually the use of regionalized rules and guidelines to achieve the purpose and policy of the IFPA is applicable to Idaho. Considerable variation in forests, soils, geology and hydrology is evident in the state. Certain areas, such as the Idaho Batholith are more sensitive to disturbance, have high natural erosion rates, or are outstanding resource areas. This feature can be developed into special BMPs or rules for high hazard areas. However, high hazard areas such as batholith geology formations occur widely in both north and south regions. The concept could better be applied to hazard zones where soils, parent materials, slope and streams combine to make a high hazard. (See land system inventory, page 15.)

INSPECTION PROCEDURES

It is the policy of the state to encourage compliance with the IFPA on private lands by advising, promoting, educating and enforcing the rules and regulations. The Department of Lands enforces the IFPA Rules and Regulations through field contacts and Forest Resource Management (FRM) services of their forest practice advisors.

Inspection schedules are determined through discussions between the forest practice advisor and his area supervisor. Inspections made during FY-1986 totaled 255 out of 2,500 practices or about 10 percent. The inspections were accomplished by six FPA advisors and the Fire Wardens working part-time on IFPA enforcement. A total of 4,500 inspections were conducted throughout the state between March 1976 and June 30, 1986. Twenty-two percent or 980 operations were found to have one or more significant non-compliance ratings (unsatisfactory) of rules. Sixty-seven of these were ultimately issued violations.

Inspections are recorded on standard forest practice report forms as shown in Figure 3. The report primarily serves to inform the operator of practices that are not in compliance with the IFPA Rules and Regulations and to provide a systematic approach for IDL field personnel to follow. Emphasis is placed on advice and assistance. Enforcement is not applied to minor or first time unsatisfactory compliance.

An effort is made to maintain uniformity in the statewide inspection process. Three or four regional meetings are scheduled annually to involve all forest practice advisors in discussion pertaining to the IFPA. Additionally, periodic and random spot checks of the forest practices advisor's work are made by their Area Supervisors, Private Forestry Bureau Chief, and the FPA coordinator.

At the time notice is given operations are classified (beginning in 1985) according to their potential for damage to water quality. This is based on the Forest Practice Advisor's knowledge regarding the geological hazard rating and sensitivity of streams or beneficial uses in the area. This provides that immediate inspections can be made of high risk operations. For example, operations in the breakland topography of the Idaho Batholith have high priority for inspection.

FIGURE 3: IDL FOREST PRACTICES FIELD INSPECTION REPORT FORM, PAGE 1 OF 2

Bureau Chief		Landowner		Pre-Operational		Notice No.		Inspection Date					
Area Supervisor		Operator		Operation in Progress		<input type="checkbox"/> Harvesting <input type="checkbox"/> Road Construction <input type="checkbox"/> Reforestation <input type="checkbox"/> Management of Slashings <input type="checkbox"/> Chemicals & Fertilizers		<input type="checkbox"/> Erosion Hazard <input type="checkbox"/> Erosion Hazard <input type="checkbox"/> Slope Over 45%					
For Print Advisor		Landowner		Operator		Parent Material		Soil Type					
<input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection <input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection		<input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection <input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection		<input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection <input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection		<input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection <input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection		<input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection <input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection					
GENERAL RULES - 2 2.a.i. Variance 2.a.ii. Other Law 2.a. Notification 2.h. Emergency Forest Practice		GENERAL RULES - 2 Satis Unsatis		ROAD CONSTRUCTION RULES - 4 4.b. Plans & Specifications b.i. Plan minimum in S.P. Zones b.ii. Plan min. width - cuts & fills b.iii. Plan vegetation between road & stream b.iv. Plan waste to be stabilized b.v. Plan culverts, erosion of fill b.vi. Plan road drainage b.vii. Plan road culverts & ditches b.viii. Plan road dips, w-bars, x-drains b.ix. Plan minimum stream xings b.x. Plan minimum cuts & fills b.xi. Plan culvert fish passage b.xii. Plan min. discharge of sediment b.xiii. Plan reuse or variance, old roads 4.c. Road Construction c.i. Construction followed plan c.ii. Excess material, slash out of SP Zone c.iii. Debris cleared from drainage ways c.iv. Stabilize exposed areas c.v. Compact and min. soft material in fills c.vi. Stream crossings, other law c.vii. Install drainage prior to runoff c.viii. Remove berms on outloped roads c.ix. Roads construct, stream channel c.x. X-drains, culverts-minimum, erosion c.xi. Relief culvert gradient OK c.xii. Wet weather const. delay c.xiii. Overhang, cuts & tree hazards		ROAD MAINTENANCE RULES - 4 4.d. Maint. done, minimum damage d.i. Sidecast out of streams d.ii. Repair, stabl. sediment haz. d.iii. Active roads OK d.iii(a) Culverts, ditches OK d.iii(b) Crown, sloped, berms OK d.iii(c) Minimize subgrade drainage, erosion d.iii(d) Surface oil, out of streams d.iii(e) Inactive roads OK d.iii(f) Culverts-ditches-slopes-drainage d.iii(g) Road closure d.iii(h) Abandoned roads OK d.iii(i) Sloped-drainage-vegetation d.iii(j) Ditches clean d.iii(k) Road closed d.iii(l) Bridges - culverts removed		TIMBER HARVESTING RULES - 3 3.b. Residual Stocking 3.c. Soil Protection c.i. Skidding Erosion c.ii. 30% Limitation c.iii. No. of skid trails & widths c.iii. Tractor size appropriate c.iii. Cable yarding 3.d. Location of Landings, Trails d.i. Stable landings & skid trails d.ii. Size of landings d.iii. Landing fill, stabilization 3.e. Drainage Systems e.i. Drainage, skid trails, stabilization e.ii. Drainage, landings, stabilization 3.f. Treatment of Waste materials f.i. Slash, waste out - Class I Stream f.ii. Slash, waste out - Class II Stream f.iii. Slash, waste out - SP Zones f.iv. Oil, fuel out - SP Zones 3.g. Stream Protection g.i. Skidding-stream xing - SP Zones g.ii. Cable-stream xing - SP Zones g.iii. Shading, stabl., filter Class I g.iv. Shading, stabl., filter Class II 3.h. Scenic-wildlife-consideration h.i. Wildlife - aquatic consideration h.ii. Wet areas consideration h.iii. Wildlife escape cover - 1/4 mile h.iv. Wildlife escape cover - 1/4 mile		ROAD MAINTENANCE RULES - 4 Satis Unsatis		ROAD MAINTENANCE RULES - 4 Satis Unsatis	
Comment or Explanation Forest Practices Advisor Date of Report													

FIGURE 3: IDL FOREST PRACTICES FIELD INSPECTION REPORT FORM, PAGE 2 OF 2

Bureau Chief Area Supervisor For Prac. Advisor Landowner	Landowner Operator Pre-Operational Operation in Progress Inactive or Completed	STATE OF IDAHO DEPARTMENT OF LANDS FOREST PRACTICES REPORT	Notice No. _____ Inspection Date _____ <input type="checkbox"/> Harvesting <input type="checkbox"/> Road Construction <input type="checkbox"/> Reforestation <input type="checkbox"/> Management of Slashings <input type="checkbox"/> Chemicals & Fertilizers Permit Material _____ Erosion Hazard _____ Soil Type _____ Erosion Hazard _____ Slopes Over 45% _____ Subdivision _____ Section _____ Township _____ Range _____ Acres Inspected _____ Stream Class (if Any) _____
<input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection <input type="checkbox"/> Contacted <input type="checkbox"/> Present On Inspection		USE OF CHEMICALS RULES — 6 g.a. FPA and other law b. Licensing c.i. Maintenance of equipment c.ii. Storage — other law d.i. Mixing, water d.ii. Mixing, landing areas e.i. Aerial application, stream buffer e.ii. Bucket shutoff f.i. Ground applic., stream buffer g.i. Hand application, specific target g.ii. Chemicals out of water sources h.i. Application by label & regulations h.ii,iii. Dosage, stream protect. i.ii,iii. Daily records i.iii. Records for 3 years j. Container disposal — other law k.i. Spills reported, cleanup action k.ii,iii. Approved cleanup, disposal l. Report stream contamination.	
GENERAL RULES — 2 X — Inspection NA — Not Applicable NI — Not Inspected Under 5 a. Exemption, use NA or Applic. in the Satisfactory column. 2.a.i. Variance 2.a.ii. Other Law 2.e. Notification 2.h. Emergency For. Prac.		SLASHING MANAGEMENT RULES — 7 7.b. Commercial product c. Non-commercial product c.iii. Reduction or offsets done c.iv. Three months extension	
REFORESTATION RULES — 5 5.a. One-year vegetation cover b. Five-year planing needed c. Stocking acceptable d. Supplemental reforest. e. Exemption f. Exempt lands vegetation		Comments or Explanation Date of Report _____ Forest Practices Advisor _____ D: 11/25-12/14/91 Reforestation, Chemicals, Slashing Management	

The adoption of formal inspection schedules and the analysis of inspections would provide input to the annual IFPA review process (Sections 2.c. and 2.d. Rules and Regulations) and provide departmental administrators with a tool for evaluating individual and program performance.

ENFORCEMENT AND APPEALS

Enforcement procedures are outlined in Sections 6 and 7 of the Act and have been further refined through IDL operations memoranda and experience. At present, "...it is the public policy of the state of Idaho to encourage forest practices on private lands and to apply forest practices on state-owned lands." This policy statement is taken from Title 38, Chapter 1302.

The activities of the Forest Practice Advisors and IDL's enforcement program are balanced in advisory and enforcement capacity. Such an approach has an appreciable impact on the acceptance of the IFPA by its clientele and the cost effectiveness of the state's enforcement program. In the past only the most adverse practices and belligerent operators have been cited for being in violation of the act. This was attributed to specific language contained in the Act. It was also associated with a sincere effort on the part of IDL, from informal direction from the legislative committees, to gain operator acceptance of the IFPA enforcement program. In 1985 IDL initiated a more rigorous enforcement policy (see page 100) which is creating greater awareness among operators of the need to comply with the IFPA.

The IFPA enforcement procedure encourages the operator to resolve the problem at each step of the process which is outlined briefly below.

1. An unsatisfactory inspection is filed and the Forest Practice Advisor offers advise on methods to correct the problem. No further action is taken if the operator complies.
2. If the operator refuses to comply, a meeting is scheduled with the operator and Area Supervisor to discuss resolution.
3. If the operator refuses to comply based on the Area Supervisor's meeting, a Notice of Violation is filed.
4. If the operator does not resolve the problem based on the Notice of Violation, a Cease and Repair Order is issued. If within two days after receipt of the order the operator has not complied or entered into an agreement to repair, the Department may issue a Stop Work Order along with an Estimate of Repairs.
5. The Department may seek a temporary injunction or restraining order. The Department may make repairs and recover costs through the courts. For a resident operator a property lien is attached to the real and personal property. For a non-resident operator costs are recovered through forfeiture of the operator's bond.

A closely related need for IDL is a revolving account containing funds necessary to make repairs. This is particularly important if contractors are to be employed to make repairs. Considerable time may elapse between payment to the contractor and collection from the violator. The director of IDL should be given the resources and fiscal procedures necessary to carry out his responsibilities. This account has been addressed in several budget requests but was never appropriated by the legislature.

Another method to increase compliance with the Act is to require bonding for all operators. The IFPA currently requires bonding only for out-of-state operators. Bonding would provide the Department with better leverage with non-complying operators than the lengthy enforcement procedures. Changing the bonding requirements could be done only through amendment of the IFPA. There is also a loophole in the current bonding requirements which allows out-of-state operators to obtain notification through a local employee. This negates the purpose of the bond and the loophole should be corrected.

ESTIMATED STAFF AND BUDGET NEEDS

MANPOWER ESTIMATES

The costs associated with a more comprehensive inspection program are primarily reflected in additional personnel although funding would also be required for the purchase, operation, and maintenance of support vehicles and services. The actual count of forest practice notifications varies from 2,200 to 3,000 per year.

Assume that 2,500 private forest practices take place in Idaho annually, and that they are classified according to their potential for damage to water quality or site productivity as: 16 percent high, 40 percent medium, 44 percent low. Inspection emphasis should be placed on high hazard land types as shown in Table 1. In comparison to current staff levels and outputs it is felt that 10 forest practice advisors could handle the workload shown in the Table.

Table 1. Private Forest Operations - Inspection needs based on potential for damage to site productivity or water quality.

Risk	Number of Operations	Inspection Goal	Number to Inspect	Number of Visitations per Operation	Number of Field Contacts Required
High	400	75%	300	3	900
Medium	1,000	30%	300	2	600
Low	<u>1,100</u>	10%	<u>110</u>	1	<u>110</u>
Totals	2,500		710		1,610

These figures can be compared to staff levels in Oregon and Washington. In Oregon 46 forest practice officers are responsible for direct field administration on approximately 11 million acres of state and private forest land. The State of Washington Department of Natural Resources has a manpower of approximately 90 FTEs on 10.7 million acres. Using the ratio of manpower to acres for Oregon results in an estimated staff of approximately 16 forest practice advisors to have a comparable program for Idaho's 4 million acres of state and private land. A staff of 10 full time foresters is, therefore, considered the minimum level needed to support the program.

At present, the Chief, Bureau of Private Forestry is responsible for coordinating and providing administrative support for the IFPA inspection procedure. Actual inspection schedules are worked out between the forest practices advisor and his area supervisor. With an increase in staff level, there is a need for a Section Supervisor. The estimated minimum budget to implement the IFPA is shown in Table 2. These staffing levels can be compared to the existing resources shown on page 100.

TABLE 2: ESTIMATED MINIMUM BUDGET TO IMPLEMENT THE IDAHO FOREST PRACTICES ACT

10 Foresters - FP training, inspections, enforcement	\$280,000
1 Forest Practice Coordinator	30,000
1 Forest Practices Bureau Chief	32,000
1 Full Time Secretary	15,000
Equipment, supplies, training materials, enforcement, court, attorney costs	80,000
Revolving repair fund - start up	<u>30,000</u>
	\$437,000

Funding for a Forest Practice Coordinator provides one full-time professional responsible for the coordination and evaluation of IFPA inspection and enforcement. This individual administers existing policy, reviews inspection reports and provides specific recommendations and assessments for program improvement. Employment of a Forest Practice Coordinator provides closer monitoring of the time commitment and work effort of those responsible for field level inspection and enforcement. In May of 1986, IDL established and filled this position. IDL obtained funding from the legislature, effective July 1, 1987, for continuation of this position.

Consideration should also be given to obtaining professional engineering, hydrology, and soil assistance; either by the retention of consulting services or by providing a staff position(s) in the director's office. This is a serious need since most adverse impacts on water quality attributed to forest practices are caused by road construction and maintenance practices.

TRAINING AND EDUCATION PROGRAM

For the IFPA to be effective the first step is that the regulated industry be familiar with the IFPA Rules and Regulations and Department guidelines. Also, it is important for the general public to be aware of the IFPA and the Department's function on forest practices. An information and education program should be aimed at these objectives. It is recommended that staff in the program, the Forest Practice Act Advisors, have primary responsibility for information and education activities rather than a separate department and staff. The most effective education is one-on-one between the FPA advisors and the operators in the field. Emphasis for funding of IFPA is on adequate field staffing which will allow time for these activities.

TRAINING

Before Department staff can be effective at information and education they must themselves be knowledgeable on all aspects of the IFPA and rules and regulations. The target audience for training is the FPA Advisors, the Forest Management Foresters, Fire Wardens, and supervisory staff. In-house training should be an on-going program which addresses many aspects. This will include familiarity with the Act, interpretation of rules and regulations, Department policy and guidelines regarding the IFPA, and enforcement procedures.

Understanding the effect of forest practices and effective mitigation covers many disciplines including a knowledge of hydrology, soils and geology, fisheries biology, water quality and engineering practice. Staff

should also be familiar with related laws which are referenced in the IFPA rules and regulations. This includes the Stream Channel Alteration Act, Idaho Water Quality Standards, the Idaho Pesticide Law, and the Hazardous Waste Management Act. Training can be accomplished through in-house sessions, University short courses, and conferences sponsored by various professional organizations. In-house training sessions may also be extended to other agency personnel - IDHW-DOE, IDWR, IFG, USFS, BLM, and SCS - as a way of increasing information exchange and coordination.

IDL has on-going annual training sessions for technical staff which have been used and can continue to be used for IFPA related topics. A Forest Practices Handbook was developed in 1982 using Section 208 funding. The handbook covers department policy, notification and bonding, enabling legislation, inspection procedures, managing unsatisfactory practices, violation procedures, and information and education materials. This handbook provides a solid basis for training staff and orientation of new employees. The handbook needs to be updated periodically to keep current with changes in Department policy and changes to the IFPA.

INFORMATION AND EDUCATION

The target audience for the information and education program are the logging operators, landowners, woodworkers, and general public interested in forest management, environmental quality, and fisheries values. The major topics for the operators and woodworkers are hands-on information on road building and timber harvesting methods which prevent erosion and protect stream quality consistent with the IFPA. In addition, a general understanding of the effect of logging on water quality and forest ecology will give the operators an appreciation for the intent of the law. The information and education program can be carried out by FPA Advisors through routine field contacts with the operator, field tours, and technical workshops sponsored by IDL. Small sessions presented at local gatherings, or as part of logging association meetings, and tailored to conditions in the area have been very effective in getting the message to the operators. These activities need to be increased proportionate to increased funding for the IFPA program.

The IFPA places the responsibility for compliance with the operator, not on the landowner. Therefore, information for landowners should be more general than for operators. IDL reports there are 3.2 million private forest acres in Idaho. Therefore, I and E efforts should be oriented toward meetings where a number of landowners are present rather than on a one-to-one basis as with the logging operators. Landowners should become familiar with the intent and general requirements of the IFPA so that they can effectively deal with logging contractors as an informed public. Private landowners own forest land for a variety of reasons; harvesting timber is only one of many objectives. Many small private landowners own forested acreage for aesthetic enjoyment. Their information needs can best be served by County Extension agents that can help them with their questions on forestry.

SUMMARY AND RECOMMENDATIONS TO DEPARTMENT OF LANDS

The Idaho Department of Lands is responsible for administration of the Idaho Forest Practices Act on state and private lands in Idaho. Studies relative to this plan have evaluated both the IFPA rules and regulations and their administration to determine if water quality is being adequately protected from degradation related to forest practices. The following section shows what recommendations were made in the 1979 208 management plan, and what progress has been made on those recommendations. The recommendations made by the Silvicultural Nonpoint Source Task Force (1985) are also listed, and action on these items is shown.

BEST MANAGEMENT PRACTICES

1979 Recommendation: Adopt the changes to the IFPA rules and regulations recommended in the 1979 208 management plan.

Action taken: The IFPA rules were revised in August 1985; this included the intent of all recommendations made in the 1979 208 plan. Additional revisions were made on September 9, 1986 to clarify certain rules, and to adopt one of two specific recommendations for rule change recommended by the NPS Task Force.

NOTIFICATION

1979 Recommendation:

- Present strategy of the IDL to gain compliance with prior notification by encouraging understanding of the act and its requirements should be continued, with emphasis on notification 15 days prior to the beginning of the operation. When it is apparent that non-compliance with notification requirements is intentional, the IDL should take prompt and aggressive corrective action. This will require a change in legislative attitude and a change in the Act, Title 38, Chapter 1306.
- Maintain the practice of granting a notification exemption for routine road maintenance, but work to develop incentive for proper maintenance techniques and schedules. Encourage landowners to give voluntary notification of conversion even though they are not required by the act to do so.
- The IFPA Rules and Regulations should specifically cite Chapter 38, Title 42, Idaho Code (Stream Channel Alteration Act) as being the criterion governing the repair and installation of hydraulic structures. (*This is now done in the introduction to the rules and regulations and in Rule 2.a.ii.*)
- Authority for enforcement of the Stream Channel Alteration Act should remain with the Department of Water Resources. The role of IDL in inspection of stream channel alterations under the IFPA should be developed by a cooperative agreement between IDL and IDWR.
- The notification form should acknowledge the authority of IDWR.
- A copy of the stream channel alteration permit should be available to IDL personnel for areas of concern to them.

Action Taken: The IFPA rules have been revised to include citation of the Stream Channel Alteration Act as recommended. Prior notification (recommended 15 days) continues to be a problem. The strategy of encouraging voluntary compliance to gain pre-notification has not been successful. The NPS task force recommended that the IFPA rules be revised to require a reasonable minimum notification period which will allow IDL to review the harvest plans prior to the activity. IDL is required by the rules to respond to a variance request within 15 days.

EMERGENCY FOREST PRACTICES

1979 Recommendation: Existing administration regarding emergency forest practices is reasonable and adequate at present. If this provision is abused, remedial action can be taken in accordance with Section 2.h. of the rules and regulations.

Action Taken: No problems with the exclusion for emergency forest practices has been noted by the department.

SPILLAGE OF PETROLEUM PRODUCTS

1979 Recommendation: Existing administration regarding spillage of petroleum products appears adequate at present. However, a concerted effort should be made to encourage the operator to immediately report leakage and/or spillage to the department. The Department of Health and Welfare should also be notified of spills to coordinate monitoring efforts (Rule 2.j.).

Action Taken: There appears to be no problem with administration of this aspect of the IFPA.

DIVISION OF STATE INTO REGIONS

1979 Recommendation: Use existing regions and forest type subdivisions until the operational practices necessary to achieve the requirements of the IFPA rules and regulations are better defined. When further subdivision is in order, forest type, geology, and hydrology may be the primary considerations.

Action Taken: No action has been taken on this item. There appears to be no value in establishing different sets of rules based on the existing regions in the act. Defining different land hazard types based on topography, geology, soil type, forest type, and stream classification would be more applicable than regions. (See land system inventory research need in Chapter II).

INSPECTION PROCEDURES

1979 Recommendation: Refine classification system for timber harvest notifications based upon such considerations as water quality, site productivity, site stability, and other factors. Inspection priorities will be based upon the potential for damage as determined by the rating. This will be accomplished through following steps:

- a. Modification of the notification form to include information pertinent to the rating system.
- b. Forest Practices Advisors will be trained to use the rating system.

Action Taken: Policies have been changed (1985) in the FPA program as a result of recommendations made by the NPS task force. Operations are now classified according to their potential for damage to water quality by IDL staff at the time notice is given. Also, IDL offices have begun classifying streams as Class I or II based on use as fisheries or domestic water supplies with assistance from IFG and IDHW-DOE. This has provided additional information on which to prioritize inspections.

MANPOWER AND ORGANIZATION

1979 Recommendation:

- Additional funding should be sought for 10 staff positions to carry out an adequate inspection program. This funding should also provide for supervisory and support staff.
- Consideration should be given to providing a basic level of soil science and engineering skill. This could be accomplished either by formal interagency agreement, retainment of consulting services, or authorization and funding of an IDL staff specialist position.

Action Taken: In 1981 appropriations were drastically cut by the legislature for the IFPA. By administrative direction activity on the IFPA was decreased to approximately 1 FTE statewide. Following the NPS task force report, the Director of IDL made changes (1985) in priority for existing programs to increase administration on the IFPA program. This included:

- a. Placing a higher priority on FPA inspections for the existing Woodland Foresters (6 at approx. 60% effort on FPA program, resulting in approximately 3.6 FTE's). To highlight the change in emphasis, the Woodland Foresters position was changed to Forest Practice Advisors,
- b. Increasing the accountability of the Area Supervisors for the IFPA program, and
- c. Directing Fire District personnel to spend part (10%) of their time on the IFPA program.

These changes are considered stop-gap measures until direct appropriation for the IFPA program can be made. In addition, a new position of Forest Practice Coordinator was created in 1986 to help promote the IFPA program. This position was partially funded by IDHW-DOE and Region 1 of the USFS. These actions have increased the effective manpower on the IFPA. However, these are short term solutions; additional state funding is still needed for new positions to meet the objectives of the program.

ENFORCEMENT AND APPEALS

1979 Recommendation:

- Continue to maintain administrative policy of encouraging voluntary compliance with the IFPA. Take prompt enforcement action when operators consistently fail to comply.
- Review existing enforcement procedures under the IFPA to determine if efficiency can be improved.
- Provide the director of IDL with a funding revolving account with which to pay for repair(s) and/or services to effect repair(s) pertaining to enforcement of the act.
- Estimate the cost of repairs on a comparable basis with the private sector. The use of contractors should be encouraged to avoid tying up state personnel and equipment. The use of contractor bids plus administrative costs as the estimate will provide financial incentive for the operator to undertake the repairs.

Action Taken: The track record for enforcement of the IFPA program is closely tied to legislative and administrative direction which influenced both time spent on the program and employee morale. This is illustrated by the number of notices of violation filed over the years:

Table 4: Notices of violation by fiscal year for the IFPA program.

Fiscal Year	Number of Violations
1979	18
1980	13
1981	6
1982	1
1983	1
1984	3
1985	5
1986	7

Enforcement has received new emphasis along with the recent increase in administration of the IFPA. A new policy on enforcement procedure (May 1986) has been included in inspection notices sent to operators and land owners.

TRAINING AND EDUCATION

1979 Recommendation:

- Update the handbook of forest practices as a basic reference for IDL personnel and for training purposes.
- Using the handbook as a basic reference, train current and new F.P. Advisors concerning requirements of the IFPA and the state-of-the-art of forest practices BMP's.
- Conduct training/education programs through industrial and logging associations for operators and management personnel.
- Initiate a training/education program for other staff, extension foresters, personnel of other state and federal agencies, and forest users.
- Conduct education program for the general public.

Action Taken: The FPA handbook was completed in 1982. The handbook needs to be revised and updated to include recent changes in program policy and direction (1985) and changes made to the FPA (1985 and 1986). Training and education programs for operators and department personnel need to be increased as noted in the 1979 recommendations.

SILVICULTURAL NONPOINT TASK FORCE RECOMMENDATIONS

The following recommendations were made by the Silvicultural NPS Task Force (1985) in regard to management of forest practices on state lands:

1. The IDL Forest Management Bureau should develop and institute a more rigorous Water Quality Impact Analysis procedure. At minimum the presale plan should identify specific practices and remedial actions needed to meet the proposed IFPA rules. (*Note: Specific practices are included in the presale plan, beginning in 1986.*)
2. Efforts should be made to involve specialists - engineers, soil scientists, biologists - in the timber management program. Priority should be placed on involvement of a logging engineer with soils-hydrology training. Involvement by soil scientists and biologists may be pursued through cooperative arrangements with the Soil Conservation Districts and the Idaho Fish and Game Department.
3. An internal process should be developed to obtain an independent evaluation of compliance with the IFPA rules on state lands. An independent inspection program would provide the Director feedback on the Department's dual role of harvesting timber and regulating forest practices. (*Note: Internal audit inspections were initiated in 1986.*)
4. Proposed timber sales should be reviewed by other state agencies prior to the sale. This would ensure that management of state lands is being conducted in compliance with other state regulations and management goals. The IDHW-DOE should review state sales prior to implementation for compliance with the Idaho Water Quality Standards. The Idaho Fish and Game Department is occasionally asked for input on the existing fishery values of streams within the timber sale area. A process to enhance this involvement is needed. They should be contacted for input to identify the need, if any, for protection of the fisheries. (*Note: Other agencies are sent copies of the annual sales plan.*)

5. Specific recommendations on the timber harvest and road building activities:
- a. Erosion control practices need to be installed and maintained during the silvicultural operation. Because forest practice activities often cover several seasons, erosion control practices need to be kept current and installed prior to the runoff seasons throughout the operation.
 - b. The policy on stabilizing cut banks and fill slopes should require grass seeding of exposed material within the same construction season to encourage root development prior to runoff. The Task Force noted that seeding of exposed material was a very effective mitigation tool where practiced which reduces erosion during the critical period following disturbance. Grass seeding should be kept current with ground disturbing road maintenance activities. (*Note: Rule 4.c.iv. was changed in 1986 to require annual treatment of disturbed sites.*)
 - c. Guidelines for use of tractor skidding should be developed. Identification of the appropriate logging method in sensitive land types is an important consideration in preventing excessive erosion and protecting water quality.
 - d. Road locations and design should be pre-planned in conformance with Rule 4.b., Road Specifications and Plans, of the IFPA Regulations.

The following recommendations were made by the NPS Task Force in regard to the IFPA program on private lands:

1. Increase assistance to landowners by the IDL before the activity occurs; increased manpower is necessary.
2. Adopt the changes to the IFPA recently proposed (Sept., 1984) by the IDL FPA Advisory Committee. (*Note: This has been done.*)
3. Amend the IFPA to strengthen its enforcement provisions and correct deficiencies in the existing enforcement procedures.
4. Clarify the IFPA by amending the IFPA Rules to require a reasonable minimum notification period which will allow IDL to review harvest plans prior to the activity. (*Note: Idaho Attorney General's office indicates that this would require a change to the IFPA.*)
5. Amend the IFPA to recognize the owner's liability in complying with the Act. The IFPA currently requires only the operator to comply with the IFPA Rules.
6. Amend the IFPA to require bonding of all operators. Compliance with the IFPA Rules on private ownerships is dependent on application of good practices by informed and conscientious operators. Enforcement after the fact cannot correct the damage to streams; this is especially true regarding sedimentation of streams. Bonding of operators should promote compliance with BMPs.
7. Amend the IFPA to require licensing of operators. Licensing will assure that operators meet minimum requirements regarding knowledge of the IFPA Rules. Licensing provides an expedient way to assure that competent operators are involved in forest practice activities, and provides a mechanism for dealing with repeat offenders. It is recognized that licensing in comparison to bonding will require additional administrative costs.

Some of these recommendations have been addressed as noted in italics. The remaining recommendations are still applicable and provide objectives for upgrade of IDL's forest practices program.

APPENDIX C

IMPLEMENTATION OF BEST MANAGEMENT PRACTICES ON FEDERAL LANDS

INTRODUCTION

Approximately 64 percent of Idaho's land is managed by various federal agencies. Federally administered land accounts for 72 percent of the commercial forest land and about 40 percent of the annual harvest in the State. The USDA Forest Service is the largest federal agency managing commercial forest land in Idaho. This agency manages 95 percent of the total federal commercial forests and supplies 96 percent of the annual harvest from federal lands. The USDI Bureau of Land Management and Bureau of Indian Affairs manage smaller but significant acreages of commercial forest land (See Table 1). Other federal agencies with minor holdings of commercial forest land include the USDA Agricultural Research Service, the USDI Fish and Wildlife Service, National Park Service, Bureau of Reclamation, and the USDD Corps of Engineers.

Table 1. Ownership of Idaho Commercial Forest Land* and Annual Harvest by Federal Agencies.

<u>Federal Agency</u>	<u>Acreage in 1984** (thousands acres)</u>	<u>Average Annual Har- vest, 1975 to 1984*** (thousand bd. ft.)</u>
USDA Forest Service	9,700	728,767
USDI Bureau of Land Management	397	18,902
USDI Bureau of Indian Affairs	52	9,330
Other Federal Agencies	7	-
	<hr/> 10,657	<hr/> 756,999

*Commercial Forest Land is based upon a timber productivity of at least 20 cubic feet/acre/year.

**Idaho Department of Lands. 1985, Idaho Bureau of Land Management.

***Kilborn, Kenneth A. 1985. Idaho timber harvest. USDA Forest Service, Cooperative Forestry and Pest Management.

In the past few decades, significant legislation has directed federal agencies in the management of lands under their jurisdiction. Much of this legislation is the result of a growing concern over the environmental quality of forest and wildland resources.

In addition to their respective organic acts, federal agencies are responsible for compliance with the Federal Clean Water Act, as amended, and the National Environmental Policy Act (NEPA), as amended. These laws are closely allied to executive orders and guidelines printed in the Federal Register. This body of law is the basis for the actions of federal agencies regarding environmental quality. Compliance is not enough, however. In Executive Order 11514, issued March 5, 1970 and amended by Executive Order 11991 on May 24, 1977, the President, citing his authority under the NEPA, ordered federal agencies to provide leadership in this effort as outlined in the following sections.

Section 1. Policy

The federal government shall provide leadership in protecting and enhancing the quality of the nation's environment to sustain and enrich human life. Federal agencies shall initiate measures needed to direct their policies, plans and programs so as to meet national environmental goals.

Section 2. Responsibilities of Federal Agencies

Monitor, evaluate, and control agency activities so as to protect and enhance the quality of the environment. Such activities include those directed at pollution control.

All agencies of the federal government are directed (NEPA, Section 102) to (1) utilize a systematic, interdisciplinary approach in planning and in decision-making; (2) identify and develop methods and procedures, in consultation with the Council on Environmental Quality (CEQ), to ensure appropriate consideration of unquantifiable environmental values; and (3) include in every report on major federal actions significantly affecting the quality of the human environment, a detailed statement on:

- a. the environmental impact of the proposed action;
- b. any adverse environmental effects which cannot be avoided should the proposal be implemented;
- c. alternatives to the proposed action;
- d. the relationship between the short-term uses of the environment and the maintenance and enhancement of long-term productivity; and
- e. any irreversible and irretrievable commitments of resources involved in the proposed action.

This section forms the basis for the environmental impact statements that are required of federal agencies and that are to be made available to other agencies, the public, and the CEQ before the proposed action is implemented.

On November 29, 1978 CEQ published regulations (40 CFR Parts 1500-1508) for implementing the procedural provisions of NEPA, as amended. Referring to NEPA, the Environmental Quality Improvement Act of 1970, as amended, Section 309 of the Clean Air Act, as amended, and Executive Order 11514, as amended, the regulations emphasize that federal agencies shall to the fullest extent possible:

- a. interpret and administer the policies, regulations, and public laws of the United States;
- b. implement procedures to make the NEPA process more useful to decision-makers and the public; to reduce paperwork and the accumulation of extraneous background data; and to emphasize real environmental issues and alternatives;
- c. integrate the requirements of NEPA with other planning and environmental review procedures required by law;
- d. encourage and facilitate public involvement in decisions which affect the quality of the human environment;
- e. use of NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects; and
- f. use all practicable means to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects.

With regard to water pollution, Executive Order 11752 (December 19, 1973) directed federal land managing agencies to meet substantive requirements regarding control and abatement of pollution. This has been reinforced by Section 313 of the Clean Water Act. Section 313 requires all federal agencies with jurisdiction over property, facility or activity which may result in discharge or runoff of pollutants to comply with federal, state, interstate, and local requirements respecting control and abatement of pollution to the same extent that any person is subject to the requirements. The requirement for federal agencies to comply with pollution control standards was reiterated in Executive Order 12088, dated October 13, 1978. The executive order directed agencies to comply with pollution control standards established pursuant to federal law and to cooperate with state, interstate, and local agencies in the prevention, control, and abatement of environmental pollution.

The State of Idaho is responsible for Section 208 planning including development of water quality standards and pollution abatement programs. Federal agencies within the state must comply with state requirements and the Governor must certify this compliance. Because of the sizeable federal holdings of forest land in Idaho, the water quality influence of forest practices conducted on these lands can be significant. It is therefore important to evaluate federal activities with regard to the state's water quality criteria and best management practices. Specifically the following sections evaluate the practices by the Forest Service and BLM to determine whether due regard is given to the concerns expressed in the Idaho Forest Practices Act (IFPA). Recommendations are intended to insure that best management practices are applied on federal lands.

EVALUATION OF FOREST SERVICE PRACTICES AND ADMINISTRATION

National Forests in the State of Idaho are divided into two Forest Service regions. The Northern Region (Region 1) includes the Clearwater, Nez Perce and Panhandle National Forests. The Intermountain Region (Region 4) includes the Boise, Caribou, Challis, Payette, Salmon, Sawtooth, and Targhee National Forests.

Authority of the USDA Forest Service is mandated by numerous acts and related amendments beginning with the 1897 Organic Act and continuing through the National Forest Management Act of 1976 (NFMA) and Amendments of the Clean Water Act in 1977 and 1980. Specific constraints and procedures for National Forest management are contained in federal regulations and the Forest Service Manual. Current planning procedures, contracts and administrative actions have been influenced by legislation, regulations and environmental concerns.

Table 2 indicates the normal sequence of steps in the NEPA procedure. The responsibility of the participants in this process are identified in Table 3.

FOREST PLANNING

With NEPA and under the direction of the Forest and Rangeland Renewable Resources Planning Act of August 17, 1974 (RPA) and NFMA, every National Forest has been directed to conduct systematic, long-range planning in management of renewable resources. To comply, each Forest has developed or is developing a single, integrated Forest Plan and accompanying Environmental Impact Statement (EIS). In Forest Plans, the management emphasis for all resources on a National Forest is displayed, the proposed activities for management of these resources over the next 10-15 years are described and scheduled, and the necessary guidance and direction to accomplish this task is provided. The environmental analysis and potential significant environmental effects of this proposed action along with other alternatives for the future management of a Forest are disclosed in an EIS. Throughout development of these documents, public participation and comment has been sought and utilized. These documents are likened to an "umbrella" because they encompass all subsequent management activities and environmental analysis on a Forest. Because there may be a need to further define land management activities that were identified at the Forest Planning level, further environmental analysis and documentation in an appropriate disclosure document [i.e., environmental assessment report (EA), EIS, etc.] is still completed but will now be tiered to

Table 2. Environmental Analysis, Documentation, and Implementation Overview of the NEPA Process.

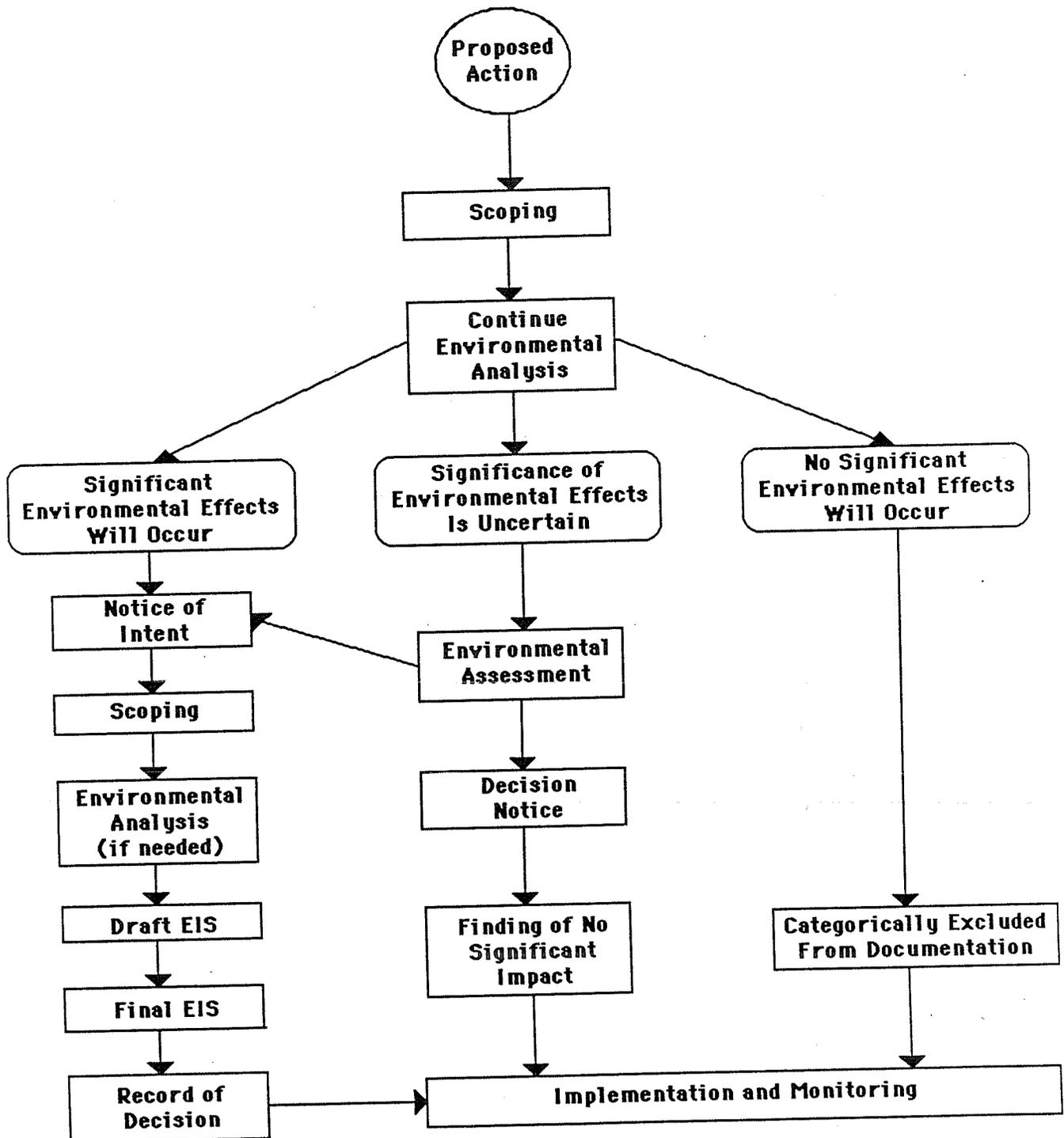


Table 3. Responsibility of participants in the NEPA Process.

NEPA Process Activity	Responsible Official	Staff, Specialist, or Interdisciplinary Team	Other Agencies Organizations, & Individuals
1. Environmental analysis actions ¹			
a. Scoping	Approve	Conduct	Provide information and suggestions
(1) Characterize the proposed action, including the nature of the decision			
(2) Identify agencies involved and the responsible official			
(3) Look for relevant issues			
(4) Explore possible effects and existing direction			
(5) Assess public participation needs and make initial contacts			
(6) Identify skills needed in the analysis			
(7) Convene interdisciplinary team, identify cooperators, and assign tasks			
(8) Expand public involvement as appropriate			
(9) Plan for an orderly analysis			
(a) Formulate analysis criteria			
(b) Formalize issues			
(c) Explore agency alternatives			
(d) Determine other analysis needs			
(e) Continue public involvement as needed			
b. Collect data	Review	Conduct	Provide information and suggestions
c. Interpret data	"	"	"
d. Develop alternatives	"	"	"
e. Estimate effects	"	"	"
f. Evaluate alternatives	"	"	"
g. Identify the preferred alternative(s)	Approve	Recommend	Recommend
2. Documentation	Review	Prepare	Review
3. Decision	Decide	Recommend	Review
4. Implementation and Monitoring	Execute	Conduct	Assist

¹Analysis actions may be omitted or combined as appropriate to the situation.

the Forest Plan. The effects of activities on a site specific basis and the cumulative effects for a given area will be evaluated in this additional environmental analysis. The Forest Plan may be amended prior to the 10-to-15-year life of the Plan based on this site specific analysis.

TIMBER SALE PROCESS OVERVIEW

Forest Service timber sale planning starts 5 to 10 years before the timber is sold for harvesting. First, the land must be classified as suited for timber production in the Forest Plan. The proposed sale must follow the standards, guidelines, and management area direction within the Forest Plan. Next, a broad level cumulative effects feasibility analysis using existing data is conducted prior to including the project on the implementation schedule to ensure that the project will not impact soil, water and other resources beyond acceptable limits. A position statement is then prepared which documents the intent and schedule to harvest, and offers tentative harvesting alternatives. Scoping is then performed. The harvest proposal is next considered by an interdisciplinary team which conducts an environmental analysis. Based on the analysis results, the appropriate NEPA document which is tiered to the Forest Plan is prepared documenting the estimated effects of the proposed timber project. After public involvement, evaluation of further input, and revision of alternatives, if required, the appropriate Forest Service official makes a decision to implement an action. The decision is documented in a Decision Notice for an EA or a Record of Decision for an EIS.

When the sale plan is approved, the timber project is implemented under terms of the decision. The Timber Sale Contract and appraisal are then prepared by using contract provisions that were selected to satisfy management constraints and mitigation measures in the environmental analysis. The timber is now advertised and sold to the successful bidder. Finally, the terms of the Timber Sale Contract, including harvesting, are administered on the ground by the qualified Sale Administrator and Forest Service Representative.

Monitoring and evaluation is performed at established intervals on an appropriate sample basis before, during and after project implementation to determine how well the management objectives, standards, and requirements set forth in the environmental analysis, decision, and Forest Plan are being met on the ground. The intensity of this monitoring and evaluation is dependent upon available funding. These evaluations will serve as the basis for identifying needed changes in management direction to meet goals and objectives.

PRE-SALE TIMBER PLANNING

Before timber harvesting on National Forest System lands, the proposed activities go through an extensive reconnaissance and analysis process. An environmental analysis is conducted for all activities affecting any resource, other land use activity, or the environment (See Table 2). The appropriate NEPA document is used to disclose the results of the environmental analysis. Two important aspects of an environmental analysis are: first, to assess the potential social, economic and environmental effects of the proposed action; and second, to define management requirements and enhancement opportunities to minimize the adverse effects of the proposed activity. If the proposed activity significantly affects the quality of the environment, an environmental impact statement (EIS) must be prepared and filed pursuant to Section 102-2-C of NEPA (See Table 2). Directions for performing an environmental analysis and preparing the appropriate NEPA document (i.e., EA, EIS, etc.) are found in FSM 1950 and FSH 1909.15.

Many potential problems that are identified in critical areas during pre-sale reconnaissance and analysis are excluded from harvest activity and avoided in subsequent planning and sale layout. Where unavoidable problems occur, alternative approaches are addressed in the environmental analysis documentation with recommendations for minimization of these adverse effects. The recommendations may be included in the contracts, permits and related action documents as specific management requirements and performance standards. The appropriate NEPA document is the primary source of the special provisions (C provisions) contained in the contract. Since individual contracts contain only those C provisions applicable to a particular activity, casual observation of a few Forest Service contracts might leave the impressions that federal requirements are not as comprehensive as the IFPA Rules and Regulations and

the Forest Service approach. The IFPA Rules and Regulations catalog a variety of generalized management constraints or performance standards, emphasizing an inspection and regulation approach. The Forest Service, on the other hand, concentrates on pre-sale planning to avoid critical areas and otherwise minimize adverse effects. The Forest Service also utilizes soil and water conservation practices (FSH 2509.22) which are action initiating process mechanisms which call for the development of detailed prescriptions and solutions. The IFPS Rules and Regulations may serve as these more detailed prescriptions or solutions.

The normal sequence of events in pre-sale reconnaissance and analysis is presented in Table 4. Since time factors for pre-sale reconnaissance and analysis vary considerably between forests and districts, the sequence is described by "Gates" (FSM 2431). Pre-sale planning typically requires a minimum of 5 years. However, this time may be shortened to accelerate preparation of a particular sale by combining several years' activities into one year. An additional 2 to 3 years may elapse before completion of the sale. Initiation of any reforestation or rehabilitation may occur concurrent with harvest on a unit by unit basis or after sale completion. As shown in Table 4, there exists ample opportunity for IFPA requirements to be identified, analyzed, and addressed.

Table 4. U.S.D.A. Forest Service Sequence of Pre-Sale Reconnaissance, Environmental Analysis, Sale Design and Advertisement.

GATE 1 - Position Statement Development

Select Specific Sale Area from Forest Plan Schedule.

Perform Reconnaissance and Compartment Examination.

Examine aerial photos, standard class maps, Forest Plan, area transportation plan, etc., for management goals and objectives, and special treatment areas.

Prepare Feasibility Analysis.

Set tentative sale boundaries.

Estimate sale volume.

Develop economic evaluation.

Verify in field.

Conduct field review.

Obtain Approval of Feasibility Analysis.

Develop Position Statement.

Conduct Scoping in NEPA Process.

GATE 2 - Sale Area Design.

Complete Environmental Analysis.

Obtain Interdisciplinary Team and/or Technical Staff Input.

Analyze Transportation Routes and Road Standards.

Conduct field review.

Analyze Timber Sale Alternatives.

Refine preliminary reconnaissance.
Refine sale boundaries and volume estimate.
Determine and review the final silvicultural prescription.
Assess erosion hazard.

Perform Economic Evaluation

Prepare Appropriate NEPA Document.

Include description of the affected environment, evaluation criteria, alternatives considered and the effects of implementation. Evaluate alternatives, recommend and identify the preferred alternative, and identify management requirements and constraints. Report consultation with others.

Document the Decision.

GATE 3 - Sale Plan Implementation.

Design and Lay Out Sale Area.

Determine Special Contract Provision Needs.

Cruise Timber.

Design and Lay Out Roads.

Prepare Knutson-Vandenberg Plan for Sale Area Improvement.

Draft and Approve Sale Plans.

Review specified road design on-the-ground.
Determine special provisions in contract.

GATE 4 - Final Package Preparation, Review, Appraisal, and Offering.

Prepare Sale Packet.

Include appraisal, sample contract, and sale map.

Prepare Advertisement, Bid Form, and Prospectus.

Conduct Show-me Trip.

Select Sale Date.

Advertise Sale.

Send bidders packet.

GATE 5 - Bid Opening.

Sell Sale.

Accept bids.
Conduct sale action.
Determine successful bidder.

GATE 6 - Award of Advertised Timber Sales.

Complete Sale Award Activities.

In Gate 1, the district staff is responsible for collecting pertinent information concerning the proposed sale area. From the Forest Plan and its schedule of activities in Management Areas, the general areas for timber harvest are identified. Specific sale areas are selected and used as a tool to accomplish the Forest Plan and Management Areas goals and objectives within these general areas through vegetative manipulation. The district staff estimates the timber volume, locates the preliminary transportation system, and delineates problem areas that need to receive special attention. Streams requiring protection are identified by the person in charge of the sale, who may confer with the forest hydrologist. As a general rule, all but intermittent streams, identified on the basis of experience and familiarity with the area, are designated for protection. Additionally, areas with soil problems and those requiring special treatment are identified. Again, considerable reliance is placed on local work experience. Soil maps and intensive soil surveys are also often used in determining erosion indices. An economic analysis determines whether the specific sale will yield a net return and whether the area will be recommended for development.

Between Gates 2 and 3 of the timber sale planning process, the district ranger appoints an interdisciplinary (ID) team of technical staffs to conduct the environmental analysis and evaluate all environmental effects of the sale. This team is responsible for considering the probable impact of the sale on all of the resources. They evaluate the location of alternative sale boundaries, road locations, and road standards, and recommend constraints or restrictions on management activities including treatments for sensitive areas. Usually this analysis will include the determination of erosion hazards and a final silvicultural prescription for the stands. An economic evaluation is also conducted by the ID team.

Next, a cumulative effects feasibility analysis is prepared by district staff. This analysis will ensure that the sale will not impact soil, water, and other resources beyond acceptable limits prior to including the sale on the Forest Plan implementation schedule. After approval of the feasibility analysis, a position statement is developed and scoping is initiated by the district staff.

The majority of the source documents for present-day guides, manuals, and rules and regulations used by the ID team to minimize soil erosion and water quality degradation within forest environments have been authored by Forest Service personnel. This information, together with data published by the EPA, Forest Service reforestation, transportation, and soil and water conservation practice handbooks, Forest Plans, and public input, provides the preliminary input to the planning ID team.

Technical staffs on the ID team often use procedures developed by Forest Service personnel to aid in resource evaluation. Many forest managers advocate the use of the "land system inventory." This inventory, which considers soil, geology, watershed and habitat type, is useful in the initial design of land management activities.

Many technical staffs utilize sediment and fishery prediction methodologies to estimate the potential effects of timber harvest, road construction, and associated activities on erosion, sediment production, and fishery habitat responses. This process is generally applied to third to fifth order watersheds and considers the climate, geology, soils, hydrology, fishery species and habitat needs/limitations, and proposed management activity. It is used with other professional tools to compare various harvest unit/roading alternatives, and evaluate cumulative effects and the maximum amount of timber harvest and road construction that may be allowed in a given watershed.

Some forest technical staffs also use a water resource inventory system to describe the hydrologic effects of changes in vegetation. This procedure generally considers the climate, hydrology, soils and habitat types of third to fifth order watersheds and estimates, together with other professional information, the changes in quantity and timing of streamflow that may result from proposed management activities. It can also aid in cumulative effects analysis and determination of the maximum amount of harvesting that may be allowed in a given watershed.

In concluding the environmental analysis, the district ranger and/or the ID team determines the environmental impacts, the relationship of the sale to short- and long-term productivity, irreversible commitment of resources, and alternatives to the sale. The ID team, after evaluation of alternatives, selects and recommends a preferred alternative with management constraints and requirements. The district ranger then approves, disapproves, or recommends changes to the preferred alternative. The district ranger and/or ID team may conduct further analysis.

The District then prepares the appropriate NEPA document to disclose the results of the environmental analysis. The public and district ranger's and forest supervisor's staffs review the document. After evaluation of further input and revision of alternatives, if required, the district ranger makes a decision to implement the timber sale. This decision is documented and the public notified of the decision.

In Gate 3, the sale area with harvest units are laid out on-the-ground. The road network and its culverts, cross drains, turnouts, etc., are located and flagged on-the-ground, and specified on the sale map. Contract specifications necessary to provide protection or resources as outlined by the appropriate NEPA document are determined by the district staff. The sale area is cruised and cost estimates are determined for the road network. The Knudson-Vandenberg Plan for sale area improvement is prepared.

The final sale package is assembled in Gate 4. The sale area and road network are reviewed and examined by the potential bidders on-the-ground along with the appraisal and sample contract. The sale is advertised.

In Gates 5 and 6, the bids for the sale are accepted, the successful bidder determined, and the sale awarded and sold.

INTERDISCIPLINARY TEAMS

The district ranger assembles the interdisciplinary (ID) team. He may request technical staffs from either the ranger district(s), forest supervisor's office, research, or outside the agency. This team is not a fixed assortment of professionals but varies in composition with issues and resource needs of the particular project.

An interdisciplinary study involves the use of a team of individuals from different disciplines in an integrated effort to achieve a common study goal. This process promotes the surfacing and evaluation of synergistic and cumulative effects which might be lost in a single person effort. It does not have to be a large or complex organization and is often one of the best analytical tools available to the resource manager. The choice of the team leader is extremely important and should be based on ability in interpersonal relations. It is important that the team is provided a clear statement of purpose and goals. All members should know the objectives of the study and understand the contributions expected of other team members. Individuals must be able to recognize and understand differing value systems.

The ID team is strictly advisory. The team's responsibility is to provide to the decision-maker the information and evaluations needed to make a reasonable decision for action. The Line Officer needs to work closely with the team to provide guidance and make intermediate level decisions. The team investigates problems, surfaces public issues and agency concerns, formulates and evaluates alternatives, conducts environmental analysis, and develops land management plans. The team also reviews specific projects, such as timber sale areas, and assists in the development of the appropriate NEPA document and other preparatory aspects of the project. The group recommends, but does not decide on, a course of action. Line officers, such as district rangers, have ultimate authority, responsibility, and accountability to approve the proposed plans and activities.

TIMBER SALE ADMINISTRATION

Timber sale administration implements pre-sale planning. Management constraints and requirements incorporated into the sale contract for resource protection are carried out under the supervision of a qualified sale administrator. This individual usually has authority and understanding to interpret various

provisions and statements contained in the contract. For example, the qualified sale administrator is responsible for the location of temporary roads, skid trails and landings, as well as for the designation of water holes and burning sites. He provides for the protection of designated streams and the residual stand, the implementation of soil and water conservation practices, and the performance of erosion control once logging has been completed. The degree of resource protection is largely the responsibility of the qualified sale administrator. It is therefore imperative that this individual have the proper training and the ability to work with contractors.

Generally the administrator meets with the contractor prior to the operation to review and discuss the terms of the sale contract. During the operations, the administrator supervises the work of the contractor to ensure compliance with contract terms and to deal with problems that may arise. A representative of the engineering staff usually supervises road construction activities conducted in conjunction with harvesting.

Compliance of the sale operation with the plans and contract is monitored primarily through a variety of highly structured, reporting and field reviews. The qualified timber sale administrator usually works directly for the timber management assistant, who conveys particular strengths or weaknesses of a sale to the district's primary staff. Information is also conveyed directly from the qualified sale administrator to the pre-sale crew. Some districts conduct on-the-ground reviews after the sale is closed, to evaluate the degree to which the Forest Plan and original sale objectives were fulfilled and to focus on improving future sales.

In addition, more specific monitoring and evaluation may be performed on a representative sample basis of sale areas on a district. This evaluation may examine soil, water, or fishery resources. It is conducted to evaluate best management practices and site-specific soil and water conservation practices, their effects, and Forest Plan and sale objectives.

TIMBER CONTRACTS AND ROAD SPECIFICATIONS

Based on the 1984 field review of forest practices within Idaho by the Silvicultural Nonpoint Source Task Force (IDHW-DOE 1985), the Forest Service was found to use practices in excess of those required in the IFPA Rules and Regulations in its road construction and timber harvesting activities. These practices primarily included the NEPA process in pre-sale planning, soil and water conservation practices, timber sale contracts, and road specifications. Timber sale contracts and road specifications are discussed below with respect to the IFPA Rules.

The Forest Service timber sale contract is divided into A, B and C provisions. The A provisions cover specific details of the sale, such as location, volume, utilization standards, minimum bid, etc. The B provisions, called "Standard Provisions," include items applicable to all contracts and cover such topics as stream course protection, erosion prevention and control, skidding and yarding, and landings. Language of these provisions are broad.

Contracts also include local or regional special provisions, called C provisions. Each of the Forest Service regions has a manual of all currently approved C provisions peculiar to that region. Problems identified in the environmental analysis or policies specific to the National Forest will determine which C provisions to include in a particular contract. All other currently approved C provisions are inappropriate for that contract and are, therefore, not a part of it. Non-recurring C provisions may also be developed from soil and water conservation practices or IFPA Rules to protect resource values on a particular sale where standard C provisions may be inadequate. These non-recurring C provisions are approved by the Regional Forester prior to use. In general, where a direct comparison can be made, C provisions are more specific and more restrictive than the IFPA Rules and Regulations.

The direct comparison of some of the IFPA Rules and Regulations to Forest Service B and C provision is included below.

Soil protection is covered by IFPA Rule 20.15.03.c. Forest Service B and C provisions are generally more restrictive than this IFPA Rule. Additional provisions are typically not needed, however, because the

environmental analysis process would identify sensitive soil types susceptible to erosion and compaction, and steep slopes. This information would determine the type of skidding or yarding system. This procedure was verified by the site visits made to Forest Service lands by the task force and by subsequent review of their environmental documents. The portion of the IFPA Rules and Regulations requiring skid trail location where sidecasting is held to a minimum has no counterpart in Forest Service contracts but is addressed in soil and water conservation practices. B provision 6.422 requires, however, that the location of all skid trails be approved prior to construction and the burden of compliance be placed on the sale administrator. Site visits did not reveal any problems with sidecasting from skid trails.

The location of landings, skid trails and fire trails is covered in IFPA Rule 20.15.03.d. Although there are no specifications in Forest Service contracts comparable to this regulation, the planning, conservation practice, and sale administration procedures of the Forest Service accomplish the intent of the IFPA Rules. Slumps and slide areas will be identified in the planning process. Locations and proper design of landings and trails is addressed through soil and water conservation practices. Landing and skid trail locations are controlled by the sale administrator. Site visits by the task force verified that Forest Service methods were adequate and effective.

Drainage systems for skid trails and landings (IFPA Rule 20.15.03.e.) receive coverage in Forest Service contracts and through soil and water conservation practices. Stated contract provisions generally exceed the standard set forth by the IFPA Rules and Regulations. The treatment of waste material (IFPA Rule 20.15.03.f.) also falls in this category. Forest Service contracts contain provisions dealing with slash disposal, slash in streams and felling near protected stream sources. These provisions are judged to meet or exceed the standards of IFPA Rules.

Most of the stream protection rules of the IFPA (Rule 20.15.03.g.) are exceeded by the B and C provisions of Forest Service contracts and use of the soil and water conservation practices. These rules relate to the operation of equipment in or near stream courses, and maintenance or establishment of vegetative riparian areas along these stream channels. Site visits revealed that careful management of riparian areas was a common practice on Forest Service lands, and that operations within these areas were very restricted. The two portions of this IFPA regulation that had no parallel Forest Service provisions related to leaving hardwood and non-commercial species and to the reestablishment of streamside vegetation when none was desired or possible. In instances where the Forest Service does not use streamside vegetation, C provisions covering these would be valid additions to the contracts. Given the level of riparian area protection observed on site visits and the planning process of the Forest Service, this situation should, however, not occur.

The maintenance of productivity and related values (IFPA Rule 20.15.03.h.) is intended to cover resources such as aquatic habitat, bogs, and wet areas. These resource values are usually investigated by the ID team during the environmental analysis and the consideration of soil and water conservation practices. Recommendations of the team generally result in a harvest plan that provides for protection of these resources. Although specific B and C provisions of Forest Service contracts do not generally discuss these resources, review of several EAs and EISs confirmed that the resources were adequately considered and that the environmental analysis recommendations influenced harvest plans.

Road construction and maintenance are the general topics of IFPA Rule 20.15.04. Comparison of these regulations with Forest Service road specifications requires additional explanation. Forest Service roads are classified as specified (permanent part of the transportation system) or temporary (obliterated and returned to production after use). Analysis of the impact of roads is part of the environmental analysis and is often the most critically examined portion of the timber sale. Once the general location of a specified road is determined, design of the road is undertaken generally by the engineers in the forest supervisor's office. Mitigation measures needed to protect soil, water, and other resources are developed by an ID team and incorporated into road design. These engineers also supervise construction. This process provides a high degree of resource protection and must be considered in comparing IFPA Rules to the B and C provisions of Forest Service contracts.

The location of temporary roads on Forest Service sales must have the approval of the qualified timber sale administrator. These roads are not subject to engineering design, but usually involve short distances or short periods of use. It may be necessary to include some soil and water conservation practices or IFPA Rules and Regulations covering temporary roads in Forest Service contracts.

IFPA Rule 20.15.04.b. concerns road specifications and plans. This rule generally exceeds specific B and C provisions. For specified roads, the engineering design process used by the Forest Service in the NEPA process and through soil and water conservation practices will result in resource protection greater than this IFPA Rule. For temporary roads, adequate resource protection is assured by the qualified sale administrator who reviews and approves plans and consults the soil and water conservation practices handbook (FSH 2509.22).

IFPA Rules 20.15.04.c. and d. concern road construction and maintenance. Forest Service road specifications, B and C provisions, soil and water conservation practices, engineering design and supervision, and the sale planning process exceed the standards of the IFPA Rules and Regulations. Mitigative measures to protect resource values that are based on Forest Service technology exceed the requirements of the IFPA Rules. These measures to prevent erosion, stabilize roads, and protect beneficial uses are used extensively and kept current with road construction/maintenance activities. The costs associated with implementing these practices and procedures are acknowledged to be higher than those used by IDL and private landowners.

Forest Service contracts contain very specific instructions for disposal of slash following logging operations. These instructions, in the form of C provisions, exceed the general standards imposed by the IFPA (Rule 20.15.07).

THINNING CONTRACTS

Pre-commercial thinning, when it is limited to dropping trees at the stump, should cause minimal soil disturbance. IFPA Rules and Regulations governing timber harvest operations can be applied to pre-commercial thinning, but are not always appropriate, since they are quite general. Many of these IFPA Rules and Regulations are not addressed in Forest Service thinning contracts. Comparison of Forest Service and IFPA Rules must cover the applicability of a particular rule to pre-commercial thinning.

Some contracts give contractors salvage rights to the material cut during thinning. Although salvage activities will probably be less intensive than those of a commercial timber harvest, they may introduce new risks of soil disturbance and may necessitate rules for resource protection.

Some comparisons between provisions found in Forest Service thinning contracts and the IFPA Rules and Regulations are discussed below. IFPA Rules and Regulations cover a large subject area and may be more restrictive than thinning contract provisions.

Road design and construction (IFPA Rules 20.15.04.b. and 20.15.04.c.) will probably never be part of a pre-commercial thinning and do not require coverage in thinning contracts. Road maintenance (IFPA Rule 20.15.04.d.), however, could be a factor if salvage material is hauled from the site. This subject is not treated in thinning contracts and should be included if the traffic of salvage operations could cause deterioration of existing roads.

Slash management provisions in recent thinning contracts usually call for lopping and piling and also regulate the location of piles to protect the residual stand and other resources. These provisions exceed IFPA Rules and Regulations (IFPA Rule 20.15.07).

Regulations dealing with construction and use of skid trails and landings and operation of equipment are not covered in detail in the thinning contracts. Some provisions do deal with operation and size of equipment used in salvage operations and with the protection and control of soil erosion, but these provisions are not as restrictive as the IFPA Rules and Regulations. The Forest Service should consider strengthening the pertinent sections to conform to IFPA standards, using as guides the soil and water conservation practices handbook (FSH 2509.22) or the IFPA Rules 20.15.03.c., d., e., and g.

Another potential problem from pre-commercial thinning involves the large accumulation of slash and the possibility of that slash entering streams. Thinning contracts require removal of slash from streams and spring areas, but the wording of these provisions may not be as restrictive as the IFPA rules. This concern can be avoided by defining thinning boundaries to exclude critical areas along streams and wet areas.

QUALIFICATION AND TRAINING

Regions 1 and 4 of the Forest Service have continuing education and qualification programs in various aspects of timber management. These programs demonstrate Forest Service concern for the proper stewardship of the resources they manage. Three of these programs involve sale administration, forest ecology and silviculture, and engineering.

The sale administrator's technical knowledge and interpersonal communication abilities will largely determine the quality of on-the-ground resource protection. The Forest Service provides continuity and consistency in technical knowledge through a qualification program for timber sale administrators. Through this program, sale administrators must be capable of independently administering timber sales that do not involve complex yarding systems, supervising designated trainees, and meeting numerous other criteria and on-the-ground experience. Further advancement requires a qualified sale administrator to have one season's experience in layout and administration of complex yarding methods.

Programs in forest ecology and silviculture have resulted from local needs and from a Forest Service directive that all prescriptions for timber removal, reforestation, and timber stand improvement be made by trained and qualified silviculturists. In Regions 1 and 4, this program entails three intensive 1-month sessions at three universities. Topics covered in this program range from watershed management to plant physiology to statistics to economics. Upon completion of course work and evaluation by a panel of university and Forest Service representatives, an individual is qualified as a silviculturist.

The Forest Service also qualifies its engineering staff. This qualification program provides training and development to achieve the quality in engineering projects commensurate with management objectives. Instructional and study materials for this program are coordinated by the Forest Service Washington Office. However, regions and forests develop additional material relating to local conditions. This is a career development program where individuals develop specific skills based on instruction and demonstration of satisfactory performance of their skills. The field in which an individual is qualified depends on his specific engineering responsibilities. Qualification entails both a written and an oral examination covering job performance requirements.

EVALUATION OF BLM PRACTICES AND ADMINISTRATION

PRE-SALE PLANNING

The Bureau of Land Management (BLM) is responsible for the management of 397,000 acres of commercial forest land in Idaho, a small area when compared with the Forest Service. BLM is involved in enough timber sale activity, however, to support staff in this area. Expertise in other areas is also available through people involved in other land management activities (e.g., engineering). The administrative organization of BLM in Idaho includes a state office in Boise and six district offices in Coeur d'Alene, Boise, Salmon, Shoshone, Burley and Idaho Falls.

The previously discussed legislation, especially NEPA and the Clean Water Act, mandates the management activities of the BLM. Therefore, BLM timber sales are subject to environmental analysis and subsequent preparation of EAs or EISs similar to those of the Forest Service described previously. This planning process should provide adequate consideration of the resources and delineate areas of resources requiring special protection.

In some instances the BLM will enter into agreements with the Forest Service to coordinate road-building and harvesting activities. The agencies usually divide the responsibilities for planning, administration, etc.

CONTRACTS

BLM timber sale contracts contain both standard and special provisions. Standard provisions are common to all BLM contracts, while special provisions are used in specific contracts in the same way C clauses are used by the Forest Service. The number and type of special provisions vary between contracts, depending on site characteristics and the requirements for resource protection as determined through the EA process.

One important clause listed as Section 25a of the standard provisions states: "Purchaser shall comply with all State and Federal laws and regulations pertaining to water quality in connection with any operations under this contract." The BLM interpretation of this clause is that they will comply with all applicable State laws including the IFPA Rules and Regulations.

Wording of the items in the BLM contract relating to soil protection (IFPA Rule 20.15.03.c.) is generally less restrictive than the IFPA Rules and Regulations. However, special provisions of the contract call for approval of a written logging plan by an authorized officer prior to the operation. Thus, the authorized officer, who uses the EA to evaluate the plan has a large responsibility for providing soil protection.

The location of landings and skid trails (IFPA Rule 20.15.03.d.) are addressed in the written logging plan. Landing locations are specified in the contract. Skid trails may or may not be specified, but must meet District guidelines for distance from streams and rehabilitation after use.

Standards for buffer strips on drainage systems (IFPA Rule 20.15.03.e.) are discussed in land use plans and set the guidelines for buffer strip management. The authorized officer has the flexibility to determine location and use.

The treatment of waste materials (IFPA Rule 20.15.03.f.) is covered in BLM contracts through provisions that meet or exceed standards of IFPA Regulations. Debris from logging is to be removed from streams. Large woody debris may be specifically placed to provide fish habitat.

Stream protection (IFPA 20.15.03.g.) is treated very generally in the provisions of BLM contracts, and buffer strips are not mentioned directly. The planning and layout processes used by the BLM should adequately address these matters. Approval of the written logging plan by an authorized officer should ensure compliance. Since this entire section of the IFPA Rules and Regulations related directly to water quality, it should also be used to control BLM operations.

The maintenance of productivity and related values (IFPA Rule 20.15.03.h.) is generally not addressed by specific BLM contract provisions. Most of these items are considered, however, in the EA and adequate consideration of EA recommendations will ensure resource protection. The section of IFPA Rules and Regulations that relates to bogs, swamps, and wet meadows falls under the provisions of Section 25a.

Road design and construction on BLM land is similar to that used on National Forest land. Roads are located on the sale maps, and specifications for these roads are included as part of the contract. The maps also include culvert locations.

BLM contract provisions on slashing management (IFPA Rule 20.15.07) generally meet the standards of IFPA Rules.

SUMMARY AND RECOMMENDATIONS TO FEDERAL AGENCIES

Federal agencies in Idaho administer a significant portion of commercial forest land and supervise annual harvests on agency lands, including those of the USDA Forest Service and the USDI Bureau of Land Management. Forest practices on federal lands are influenced by mandates of federal legislation, especially the National Environmental Policy Act, as amended, the National Forest Management Act, and the Federal Clean Water Act, as amended. The agencies are required by law to comply with State Water

Quality Standards including best management practices as prescribed by the Idaho Forest Practices Act Rules and Regulations.

The USDA Forest Service, the largest single agency administering commercial forest land in Idaho, generally has sufficient funds and staff to ensure adequate consideration of resources which may be affected by forest practices. Thus, they exceed the IFPA requirements, many of which are considered during the planning phases of forest activities--especially those dealing with the location and design of roads, skid trails and landings, and with the protection of streams. The Forest Service's administration of forest practices are providing high levels of water quality protection.

On a smaller scale the Bureau of Land Management is also involved with forest management activities in Idaho. Generally their funds and staff are not adequate for them to evaluate the environmental effects of forest practices to the same degree the Forest Service does but this situation is improving. The BLM does support a staff of specialists and they can give adequate consideration to probable impacts of a given forest practice. Monitoring instream effects is very difficult on BLM lands because these lands are often intermixed with other ownerships.

The degree of compliance with the IFPA Rules and Regulations is significantly affected by the federal agency administering a given harvest site. There is a continued need for adequate training for sale administrators in erosion prevention and control, hydrologic processes, and the IFPA Rules and Regulations.

The following recommendations were presented in the 1979 version of this document to increase the likelihood that the Rules and Regulations of the IFPA were being addressed by federal agency procedures and contracts.

1. Endorse and utilize the IFPA Rules and Regulations as modified in Appendix A as best management practices.
2. Use of IFPA Rules and Regulations as a source document and support document for all environmental analysis reports or environmental impact statements relating to forest practices that affect water quality.
3. During pre-sale reconnaissance, identify the timber harvesting plans of other timber owners in a given watershed so that planning can address the overall cumulative impact.
4. During the planning process for a proposed timber sale, personnel should specifically integrate IFPA Rules and Regulations dealing with road widths, skid trails, temporary roads, shading requirements for streams, the use of hardwood and non-commercial species for streamside vegetation and riparian areas, and the reestablishment of streamside vegetation.
5. Provide formal instruction on hydrologic and erosion processes within the qualification programs for sale administrators and road construction supervisors.
6. Provide instruction on the IFPA Rules and Regulations to sale administrators, selected ID team personnel, key sale preparation personnel, and engineering and design personnel.
7. Routinely conduct technical post-audits of completed forest practices, especially harvest and road construction activities, to evaluate the effectiveness of the best management practices (BMPs) and to expedite development and dissemination of data pertaining to forest practices.
8. Include a provision similar to the following in all contracts relating to forest practices or incorporate specific provisions which equal all IFPA Rules relating to water quality:

"Purchaser shall comply with all State and Federal laws and regulations pertaining to forest practices that affect water quality in connection with any operations under this contract."

With respect to the Forest Service, all recommendations have been fulfilled except for (3). In recommendation (3), the Forest Service is, however, continuing to cooperate with the State (IDL and IDHW-DOE) and EPA to address cumulative watershed impacts from forest practices in mixed ownership drainages. All other recommendations have been accomplished through changes to the State Water Quality Standards and development of Memoranda of Understanding; incorporated into Forest Plans; recognized in appropriate NEPA documents and the Soil and Water Conservation Practices Handbook; and performed as part of standard activities on National Forests.

The conclusions of the Silvicultural Nonpoint Source Task Force (IDHW-DOE, 1985) further collaborated the Forest Service's fulfillment of the above recommendations. This 1984 Task Force's only recommendation to the Forest Service, after extensive field review of National Forest activities, was:

"The Forest Service should continue to field verify and work on techniques to improve the reliability for monitoring, modeling, and predicting cumulative impacts on protected [beneficial] uses."

The BLM has also met most of the recommendations made in the 1979 version of this document. The recommendations not fully met are recommendations #3, regarding cumulative effects, and #5, regarding formal instruction of sale administrators. The BLM will participate in the Cumulative Watershed Effects Cooperative described in Chapter III which initiates a process to resolve this problem. BLM needs to initiate a more formal instruction program for sale administrators as described in recommendation #5.

Both federal agencies need to place more effort on monitoring programs. This includes standardization of techniques, data analysis and presentation, cooperative monitoring programs between agencies (and divisions of the same agency), and more resources devoted toward a long term monitoring program. These needs are included in the action item on Monitoring Coordination in Chapter III.

APPENDIX D

**FIELD EVALUATION WORKSHEET USED BY
SILVICULTURAL NONPOINT SOURCE
TASK FORCE**

IDAHO FOREST PRACTICE EVALUATION WORKSHEET

DATE: _____

LOCATION

SITE (Describe): _____

COUNTY: _____ DESCRIPTION (Sect., T., R.) _____

OWNER: _____

OPERATOR: _____

FPA FOREST REGION(✓): North _____ South _____

USFS _____ State _____ Private Industrial _____ Small Landowner _____

PHYSICAL INFORMATION

ELEVATION: Mean _____ Range _____

SLOPE: Mean _____ Range _____

CLIMATE: Annual Precipitation (in.) _____

Antecedent Conditions _____

GEOLOGY & SOILS: (Describe) _____

VEGETATION: Forest Stand _____

(Describe) Streamside Vegetation _____

SHADING (%): Preharvest _____ Post-Harvest _____

PRACTICES

STAGE(✓): Road Construction _____ Harvest _____

Slash Management _____ Reforestation _____

ROADS: (Describe) _____

CONSTRUCTION METHOD: _____

HARVEST: Clearcut _____ Seed Tree _____

(Acres & Yarding System) Ind. Selection _____ Shelterwood _____

SITE PREPARATION & REFORESTATION: (Describe) _____

FPA RULES ¹	Compliance					W. Q. Impacts					COMMENTS	
	1	2	3	4	5	1	2	3	4	5		
813.00 <u>TIMBER HARVESTING</u>												
813.03 <u>SOIL PROTECTION</u> (Use the appropriate Logging method)												
(1) Avoid tractor skidding on sensitive soils												
(2) Avoid tractor skidding across slumps												
(3) Limit skid trail grade to 30%												
*(4) Skid trails kept to minimum width												
** (5) Yard uphill, lift log end in downhill yarding												
813.04 <u>LOCATION OF LANDINGS, SKID TRAILS, & FIRE TRAILS</u> (Locate to prevent risk of material from entering stream course)												
** (1) Locate on stable areas outside SPZ												
(2) Minimize size of landing												
* (3) Fill material in landings, re: stability												
(1) Locate above highwater mark												

BMP RATING SYSTEM

Compliance with FPA Rules

- 5 - Operation exceeds requirements of the Forest Practices Rules.
- 4 - Met rule requirements, the intent of the rule.
- 3 - Minor departures from intent of the rule.
- 2 - Major departures from intent of the rule.
- 1 - Grossly neglected rule requirements.

Impacts on Protected Uses

- 5 - Improved protection of water quality or fisheries habitat over pre-existing conditions.
- 4 - Adequate protection for water quality & fisheries habitat conditions.
- 3 - Minor and/or temporary hazard to water quality or fishery habitat.
- 2 - Major hazard to water quality or fishery habitat, but limited spatially or is temporary-recovery is expected.
- 1 - Severe hazard to water quality or fishery habitat, damage is extensive spatially-recovery is expected to be slow, so as to prolong the damage over time.

NOTE:

- NA - Not Applicable
- NI - Not Inspected
- 1 - Rules as recommended in Forest Practice Water Quality Management Plan, IDHW, 1979
- * - New rule, not listed in the existing FPA rules.
- ** - Modified from existing FPA rules.

FPA RULES I

COMMENTS

Compliance

W.Q. Impacts

1 2 3 4 5 1 2 3 4 5

814.03 ROAD SPECIFICATIONS AND PLANS (See Footnote)

- (1) Flexible standards
- (2) Minimum width, minimize cut & fill by design
- (3) Design buffer strips
- * (4) Embankment design for disposal on stable sites
- (5) Design culverts to prevent fill erosion
- (6) Plan outslopped roads, or insloped with X-drainage
- * (7) Use relief culverts & roadside ditches when needed
- ** (8) Provide dips, water bars, or X-drainage when necessary
- * (9) Minimize stream crossings, minimum standards
- (10) Avoid excessive cuts & fills near stream channels
- ** (11) Culverts: fish passage on Class I streams
- * (12) Plan drainage to minimize sediment into streams
- * (13) Reuse of existing roads favored
- (8) Existing rule applies only to temporary roads
- (11) All culverts to provide fish passage (more restrictive)

814.04 ROAD CONSTRUCTION

- * (1) Roads consistent with plans
- ** (2) Deposit excess material outside SPZ
- (3) Clear drainage ways of debris

NOTE: If plans are not available or not reviewed, rate only section 10, 11, & 13.

PROTECTED USE IMPACTS
STREAM/REACH IDENTIFICATION

NAME: _____
REACH DESCRIPTION: _____
STREAM ORDER: _____ STREAM STAGE: _____
LENGTH OF STREAM EVALUATION: _____

FISH HABITAT

FPA STREAM CLASS: I _____ II _____
FISHERY TYPE*: _____
IF&G STREAM CLASS*: _____
PRIMARY FISHERY USE**: _____
SPECIES PRESENT: _____

PROJECT HABITAT IMPACTS

BANK INTEGRITY: _____
DIRECT SEDIMENT DELIVERY: _____
COBBLE IMBEDDEDNESS (OBVIOUS): _____

OTHER HABITAT IMPACT SOURCES

UPSTREAM SEDIMENT SOURCES: _____
OTHER FACTORS AFFECTING BANK INTEGRITY: _____

* As described in the draft Serious Injury Table,

Fishery Type: 1. Warm Water Fish, 2. Hatchery Trout with No Wild Trout,
3. Wild Trout (with or without Hatchery Supplement), 4. Kokanee or
Steelhead, 5. Chinook Salmon.
IF&G Stream Class: 1. Extremely Critical, 2. Highly Critical,
3. Critical, 4. Moderate, 5. Low.

**Fishery Use: Spawning, Rearing, Fish Passage, etc.

PROTECTED USE IMPACT SUMMARY

TYPE:

Sediment
Temperature
Slash Debris
Habitat Change

SOURCE:

Estimated Cause
For Practice Related

INTENSITY:

Low
Moderate
Severe

DURATION:

Past
Future

RECOMMENDATION:

Recommend Action
to Prevent or
Mitigate Problem

NOTES:
