



FOREST SERVICE HANDBOOK ALASKA REGION (REGION 10) JUNEAU, ALASKA

FSH 2509.22 – SOIL AND WATER CONSERVATION HANDBOOK

CHAPTER - ZERO CODE

Amendment No.: R-10 2509.22-2006-1

Effective Date: July 14, 2006

Duration: This amendment is effective until superseded or removed.

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Date Approved: 06/22/2006

Posting Instructions: Amendments are numbered consecutively by Handbook number and calendar year. Post by document; remove the entire document and replace it with this amendment. Retain this transmittal as the first page(s) of this document. The last amendment to this Handbook was 2509.22-96-1 to complete handbook.

New Document	2509.22_zero_code	14 Pages
Superseded Document(s) by Issuance Number and Effective Date	2509.22,0 Code Contents (2509.22-96-1, 10/31/96)	1 Page
	2509.22,0 Code (2509.22-96-1, 10/31/96)	11 Pages

Digest:

Converts format and style of this amendment to the approved FSH template using the agency's current corporate word processing software.

Although some minor typographical and technical errors have been corrected, this amendment contains no changes to substantive direction.

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01 - AUTHORITY

The Clean Water Act of 1972 (Public Law 92-500), as amended in 1977 (Public Law 95-217) and 1987 (Public Law 100-4), has the objective and grants the authority to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.

Sections 208 and 319 of the Clean Water Act recognized the need for nonpoint source pollution control strategies. The National Nonpoint Source Policy (December 12, 1984), the Forest Service Nonpoint Strategy (January 29, 1985), and the USDA Nonpoint Source Water Quality Policy (December 5, 1986) were developed to emphasize the protection and improvement of water and soil resources and water-related beneficial uses. Best Management Practices (BMPs) were recognized as the primary control mechanisms for nonpoint sources of pollution on National Forest System lands. This perspective is supported by the Environmental Protection Agency (EPA) in their guidance, "Nonpoint Source Controls and Water Quality Standards" (August 19, 1987).

Section 402(p) of the Clean Water Act require National Pollutant Discharge Elimination System (NPDES) permits for storm water runoff. EPA regulations call for use of BMPs to control pollution from storm water runoff.

Section 313 of the Clean Water Act and Executive Order 12088 require adherence to the goals set forth in a State's Water Quality Standards, which are intended to protect the designated beneficial uses of the State's waters.

Sections 313 and 319 of the Clean Water Act address Federal agency compliance with water pollution control mandates. Agency compliance is to be consistent with requirements that apply to "any nongovernmental entity" or private person. Compliance is to be in line with "all Federal, State, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution."

To comply with State Water Quality Standards, the Forest Service is required to apply BMPs that are "consistent" with State Forest Practices and other applicable State Water Quality Regulations. Site-specific application of these BMPs are designed with consideration of geology, land type, hydrology, soil type, erosion hazard, climate, cumulative effects, and other factors in order to fully protect and maintain soil, water, and water-related beneficial uses, and to prevent or reduce nonpoint source pollution.

02 - OBJECTIVE

The objective of this handbook is to consolidate direction for the use of BMPs on National Forest System lands in Alaska, to minimize the adverse impacts of management activities on soil and water resources, and to protect the State designated beneficial water uses. This handbook describes the application, monitoring, evaluation, and refinement of these BMPs.

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03 - POLICY

The Forest Service is responsive to the environmental intent and directives provided in the Clean Water Act as amended, State water quality goals and standards, and other environmental legislation. As part of its land stewardship policy, the Forest Service's management actions are carried out in a manner which protects the soil and water resources. The Forest Service will continue to coordinate management actions affecting water quality and associated beneficial uses with the Alaska Department of Environmental Conservation (ADEC) and the Alaska Department of Fish and Game. Unified policy concerning when and how to obtain permits and/or concurrence from a variety of State and Federal agencies is contained in FSM 5460.1 (R-10 Supplement 32).

The Forest Service will continue to provide leadership in nonpoint source pollution control for all management activities occurring on National Forest System lands. The April 1992 Memorandum of Agreement (MOA) with the ADEC commits both agencies to their respective responsibilities pursuant to National Forest nonpoint source water quality protection tasks described in the Alaska Nonpoint Source Pollution Control Strategy, approved by the EPA in August 1990. It is the intent of the MOA that the Forest Service and ADEC will collaborate on the implementation and monitoring of BMPs on National Forest System (NFS) lands in Alaska.

The reasonable implementation, and site-specific application of State approved BMPs, in conjunction with monitoring and feedback to ensure appropriate corrective action is taken on observed water quality degradation, achieves compliance with the intent of the Clean Water Act and State water quality standards. The EPA Water Quality Standards Handbook, Chapter 2, states:

"Proper installation, operation and maintenance of State approved BMPs are presumed to meet a landowner's or manager's obligation for compliance with applicable water quality standards. If subsequent evaluation indicates that approved and properly installed BMPs are not achieving water quality standards, the State should take steps to: (1) revise the BMPs, and (2) evaluate and, if appropriate, revise water quality standards (designated beneficial uses and water quality criteria) or both." (EPA, Water Quality Standards Handbook, 1983; Ch 2, General Program Guidance, NPS Controls and Water Quality Standards Preamble, 8/19/87)

The primary means for evaluating the effectiveness of BMPs is to determine the degree to which instream water quality meets State water quality standards.

In accordance with the Multiple-Use-Sustained Yield Act and other legislation (RPA, NFMA), NFS lands are to be managed for multiple uses. Soil and water resources are managed to protect beneficial uses and long-term productivity. BMPs are a means to ensure protection of those resources and uses, while achieving other resource objectives. Application of BMPs represents the state-of-the-art for nonpoint source pollution control.

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Pursuant to Section 208 of the Clean Water Act, all agencies which are responsible for carrying out any portion of a State Water Quality Management Plan to minimize nonpoint source pollution may be designated as a Water Quality Management Agency. The Forest Service is working with the State to become recognized as the Designated Water Quality Management Agency for NFS lands in Alaska. This handbook chapter has been prepared to provide the Forest Service with a means to meet the intent of the CWA, and to be designated as the water quality management agency for NFS lands.

04 - RESPONSIBILITY

1. Regional Forester. The Regional Forester shall:
 - a. Provide program guidance for BMPs.
 - b. Provide BMP training and documentation.
 - c. Coordinate with appropriate State and other Federal agencies involved in water quality regulation, management of water-related beneficial uses, watershed management, and BMPs.
 - d. Monitor, evaluate, and improve, on a Regional basis, the implementation and effectiveness of Best Management Practices.
 - e. Inform the State of the results of monitoring and evaluation.
2. Forest Supervisor. The Forest Supervisor shall:
 - a. Provide training for Forest personnel in the site-specific application and use of BMPs.
 - b. Coordinate with appropriate State and other Federal agencies involved in water quality regulation, management of water-related beneficial uses, watershed management, and BMPs.
 - c. Monitor, evaluate, and improve the site-specific application of BMPs with respect to changing technologies and Forest Service direction.
 - d. Notify the Regional Forester of any new development or improvement in the site-specific application of BMPs.
 - e. Monitor the implementation and effectiveness of BMPs and make recommendations for their improvement, or for the addition of new Best Management Practices.

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3. District Ranger. The District Ranger shall:
 - a. Assure the consideration of BMPs in the planning phase of all NEPA projects.
 - b. Apply the appropriate BMPs to all resource management projects and tailor to fit site-specific needs.
 - c. Monitor and document the implementation and effectiveness of the site-specific application of BMPs and provide any necessary adjustments.
 - b. Coordinate with appropriate State and other Federal agencies involved in water quality regulation, management of water-related beneficial uses, watershed management, and BMPs.

05 - DEFINITIONS

1. Abbreviations.

AHMU	Aquatic Habitat Management Unit
BLM	Bureau of Land Management
BMP	Best Management Practice
CFR	Code of Federal Regulations
COE	Army Corps of Engineers
COR	Contracting Officer's Representative
CWA	Clean Water Act (1987)
CWE	Cumulative Watershed Effects
EA(R)	Environmental Assessment (Report)
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EIS	Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FSH	Forest Service Handbook
FSM	Forest Service Manual
IDT	Interdisciplinary Team
LTF	Log Transfer Facility
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act and/or Regulations
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
ORV	Off Road Vehicle
R-10	Region 10 (Alaska Region) of the USDA Forest Service
RPA	Resource Planning Act
SA	Sale Administrator
NRCS	Natural Resource Conservation Service

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SPCC	Spill Prevention Control and Counter Measure
TSA	Timber Sale Administrator
TTRA	Tongass Timber Reform Act (1990)
WQS	Water Quality Standards

2. Terms.

Area Transportation Plan: A plan that identifies the transportation facilities needed to manage the lands and resources for a given area.

Aquatic Habitat Management Unit (AHMU): Geographically definable areas with distinctive resource values and characteristics that are comprised of the aquatic, and the riparian ecosystem, with a minimum width of at least 100 feet from all perennial streams and bodies of water.

Baseline Data: Data representative of a particular base period or concurrent control sample. Normally representative of the undisturbed, undeveloped state.

Beneficial Use: Actual or reasonable potential use that may be made of the waters of the State, including but not necessarily limited to domestic, municipal, agricultural, and industrial supply; power generation; recreation; esthetic enjoyment; navigation; propagation and enhancement of fish, wildlife, and other aquatic resources.

Best Management Practices (BMPs): "methods, measures, or practices to prevent or reduce water pollution, including, but not limited to, structural and nonstructural controls, operation and maintenance procedures, other requirements and scheduling and distribution of activities. Usually BMPs are applied as a system of practices rather than a single practice. BMPs are selected on the basis of site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility" (Chapter 2, EPA Water Quality Standards Handbook). This definition resulted from the Forest Service working with EPA to rewrite the SAM-32 Guidance, dated August 19, 1987).

Channel Type: A classification unit for natural streams in R-10 based on measurable morphological features (FSH 2609.24).

Contracting Officer: The individual authorized to sign legal contracts on behalf of the Government. The designated line officer has overall responsibility to represent the government and supervise the administration of timber sale contracts. The Contracting Officer supervises, coordinates, or performs all aspects of sale administration.

Contracting Officer's Representative (COR): The individual designated, in writing by the Contracting Officer, for the day-to-day, on-the-ground administration of a public works contract. The letter of designation contains the authorities and responsibilities for the work.

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Contract Provisions: Controls, constraints, and/or general direction included in contracts offered by the Forest Service.

Cross Drain/Ditch: A ditch or channel constructed to intercept surface water runoff and divert it to a stable channel or disburse it before the runoff increases to erosive volumes and velocities.

Crowning: Forming a convex road surface that allows runoff to drain from the running surface to both sides of the road prism.

Cumulative Effect: 'Cumulative impact' is the impact on the environment that 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 terms "impact" and "effects" as used in the regulations are synonymous.

Degradation of Water Quality: As defined in 11 AAC 98.840, means a decrease in water quality such that the affected waters are unable to fully maintain existing or designated uses; "degradation of water quality" does not include changes that are temporary, localized, and reparable:

reparable: means an effect on, or change to, a use or aquatic system due to a decrease in water quality that is reversible by natural processes such that the use or system will return to a state functionally identical to the original.

temporary: means 48 hours or less with respect to existing uses.

Designated Streams: A stream or portion of a stream identified as warranting special consideration in management decisions and project activities. See also stream or stream course.

Engineering Representative: The individual designated, in writing by the Contracting Officer or the Forest Service Representative, for the day-to-day, on-the-ground administration of the specified road construction on a timber sale contract. The letter of designation contains the authorities and responsibilities for the work.

Floodplain: The lowland and relatively flat areas adjoining inland waters that are inundated during flooding.

Flow Directly Into: All Class II branches of a Class II stream, that flow into a Class I stream without a mapable intervening Class III, Class IV, or nonstream segment, will be considered part of the Class II stream which “. . . flow directly into . . .” the Class I stream. Mandatory minimum 100 foot buffers will not apply to: 1) A Class II stream that flows directly

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into the ocean, or joins a Class I stream only at lower than mean high tide; and 2) A Class II stream segment that flows into a mapable Class III, Class IV, or nonstream segment that in turn flows into a Class I Stream. These two instances clearly do not “. . . flow directly into . . . “a Class I stream. (RF memo 11/21/95).

Forest Service Representative: The individual designated, in writing by the Contracting Officer of a timber sale contract, to receive notices in regard to performance under the contract, take action in relation to the contract, and be readily available to the areas of construction and logging.

Hazardous Substances: Materials that are toxic or dangerous to handle or dispose of, such as radioactive materials, petroleum products, pesticides, chemicals, and biological wastes.

In-Service: Pertains to activities, actions, or personnel within the USDA Forest Service.

Insloping: Shaping a road to cause drainage to flow toward the inside shoulder (generally the cut slope), as opposed to outsloping.

Interdisciplinary Team (IDT): A group of individuals representing various disciplines or skills, appropriate for recommending solutions to the deciding official, for the issues or concerns identified. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the identified issue or concern. The members of the team proceed to solution with frequent interaction so that each discipline may provide insights to any stage of the problem and disciplines may combine to provide new solutions.

Karst: Type of topography that develops in areas underlain by soluble rocks, primarily limestone. Dissolution of the subsurface strata results in areas of well-developed subsurface drainage characterized by sinkholes, collapsed channels, vertical shafts, and caves.

Line Officer: Management personnel within the Forest Service, such as the Chief of Forest Service, Regional Foresters, Forest Supervisors, and District Rangers. Refers to the line of authority and responsibility.

Liquefaction: The process whereby a soil obtains the properties of liquid when disturbed.

Localized: Local; locally oriented, assigned to or kept within a definite locality; in a specific or limited area.

Log Landing: An area to which logs are skidded or yarded for loading on trucks for transport to a log transfer facility or to a mill.

Log Transfer Facility: A tidewater site constructed for the purpose of storing, sorting, and transferring logs to or from a vessel or log raft.

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Mass Wasting: A variety of processes by which large masses of earth material are moved by gravity either slowly or quickly from one place to another.

Mitigate: To offset or lessen real or potential impacts or effects through the application of additional controls or actions. Measures used to reduce or eliminate undesirable or unwanted results.

Monitoring: The periodic collection of information through the measurement and observation of natural phenomena and management activities relevant to specific management questions. Monitoring is usually done on a representative sample basis to assess the impacts of land management activities, determine how well objectives have been met, and check compliance with established standards and to establish long-term trends.

Muskeg: See Peatlands.

NEPA Process: All measures necessary for compliance with the requirements of Section 2 and Title I of the National Environmental Policy Act (NEPA) are found in 40 CFR, Sections 1500 to 1508.

Nonpoint Source Pollution (NSP): Diffuse sources of water pollution that originate from many undefinable sources, and normally include agricultural and urban runoff, runoff from construction activities, and so forth. In practical terms, nonpoint sources do not discharge at a specific, single location (such as a single pipe). Nonpoint source pollutants are generally carried over or through the soil and ground cover via storm flow processes. Unlike point sources of pollution (such as industrial and municipal effluent discharge pipes), nonpoint sources are diffuse and can come from any land area. The following activities are potential nonpoint sources of pollution: reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvest operations, surface drainage, and road construction and maintenance from which there is natural runoff (40 CFR 122.27).

Normal Operating Season: A part of a year when normal timber harvesting operations are expected to take place, uninterrupted by adverse weather conditions.

NPDES Permit: The National Pollutant Discharge Elimination System is the title of section 402 of the CWA. NPDES is used to describe all permits issued under this section that deals with point sources of pollution. In Alaska, EPA issues NPDES point source wastewater discharge permits.

Obliteration: Normally used in conjunction with the closing of temporary roads. This means restoring the natural surface and subsurface runoff characteristics of the site and removing all culverts and other drainage structures so that facility maintenance is not required. Reshaping to approximate the natural contour may be necessary.

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Outsloping: Shaping a road to cause drainage to flow toward the outside shoulder (generally the fill slope), as opposed to insloping. Emphasis is on avoiding concentrated water flow.

Peat lands: (Muskeg) are peat-forming ecosystems where the rate of organic matter accumulation exceeds decomposition. Peatlands can occur as bogs or fens and some may have stunted forests. Bogs are Sphagnum-dominated, have very acidic conditions (pH 3-4), low oxygen, and receive most of their water from precipitation. In contrast, sedges dominate fens or forbs, have slightly acidic to neutral pH, have better aeration, and receive nutrient-rich subsurface water from upslope-forested areas. Muck soils are characteristic of many fens.

Permittee: Individual or entity that has received a special-use permit from the Forest Service.

Pesticide: A general term applied to a variety of chemical materials including insecticides, herbicides, fungicides, and rodenticides.

Pioneer Road Construction: Pioneer road construction consists of clearing, excavation, and placement of the debris mat or preparation of a bench upon which unclassified excavation and/or borrow excavation (shot rock) is placed to form the subgrade. The pioneer road should be constructed as nearly as possible on the alignment of the finished roadway.

Point Source: Originating from a discrete identifiable source or conveyance. Examples of point sources of pollution include gravel washing, mine tailings pond discharges, and sewage plant outfalls (40 CFR 122.27).

Purchaser: The entity that is awarded a USDA, Forest Service timber sale contract.

Qualitative: Of, relating to or involving quality or kind.

Quantitative: Of relating to, or involving the measurement of quantity or amount.

Riparian Areas: Land and vegetation for approximately 100 feet from the edges of all perennial streams, lakes, and other bodies of water meriting special attention under NFMA regulations. This area shall correspond to at least the recognizable area dominated by the riparian vegetation (Section (e) of 36 CFR 219.27).

Riparian Ecosystem: A transition between the aquatic ecosystem and the adjacent terrestrial ecosystem identified by hydric soil characteristics or hydrophytic vegetation communities that require free or unbound water.

Riprap: Rock, boulders, or concrete chunks used as an armoring device. Engineering specifications define the various classes of riprap.

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Road Maintenance Plan: A documented schedule and program for upkeep of roads to provide a level of service for the user and protection of resources. There are five levels of maintenance, Level 1 being the least intense and Level 5 being the most intensive.

Sale Area Map: A legible map of suitable scale and detail included in a timber sale contract. The map identifies sale area boundaries and contract requirements specific to the sale.

Sedimentation: The transport and deposition of particulate materials within the fluvial system. Management-caused acceleration of the naturally occurring sedimentation rates are normally considered detrimental to water quality as described within Alaska Water Quality Standard Regulations (18 AAC 70).

Self-Maintaining Condition: Means that the natural erosional processes are in dynamic equilibrium as defined by the natural drainage patterns and vegetative cover conditions. Almost all structural measures require periodic maintenance to remain effective, while vegetative measures are self-maintaining, once established. The objective is to use structural measures to speed the establishment of vegetation as a self-maintaining system.

Significant Disturbance: A disturbance of surface resources, including soil, water, and vegetation, which has the potential to degrade water quality to a level requiring corrective action.

Silviculture: The theory and practice of controlling forest establishment, composition, and growth.

Sinkhole: Also called "doline" are bowl- or funnel-shaped depressions generally formed by dissolution of and subsequent settlement of bedrock, or the collapse of cave roofs to form a depression.

Site Preparation: A general term for removing unwanted vegetation, slash, and even roots and stones from a site before reforestation. It is generally accomplished by mechanical, chemical or biological means, or controlled fire.

Site-Specific: Pertains to a discernible, definable area or point on the ground where a project or activity will (or is proposed) to occur.

Soil Productivity: The capacity of a soil to produce a specific crop such as fiber and forage, under defined levels of management. Soil productivity is generally dependent on available soil moisture, nutrients, texture, structure, organic matter, and length of growing season.

Special-Use Permit: A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of NFS lands for some special purpose.

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Specified Road: A forest development transportation system road that is identified in and to be constructed or reconstructed under a Forest Service timber sale contract.

Stream Class: A mapping unit that displays an identified value for aquatic resources. These are a mechanism for carrying out Region 10 water quality management and aquatic resource management policies and plans.

Stream or Stream course: A natural channel with defined bed, banks, and sediment transport capabilities. It may be perennial, intermittent, or ephemeral.

Surfacing: The application of aggregate to a roadbed to provide strength and a more stable erosion resistant surface.

Temporary Road: Also known as short-term roads are constructed for a short-term purpose, often less than one year and are not a part of the Specified Road System.

Timber Sale Administrator (TSA): The individual designated, in writing by the Contracting Officer or the Forest Service Representative, for the day-to-day, on-the-ground administration of the logging activities on a timber sale contract. The letter of designation contains the authorities and responsibilities for the work.

Timber Sale Contract Provisions:

Division A - Contains specific conditions and details of the individual sale.

Division B - Contains standard provisions for Forest Service timber sale contracts.

Division C - Contains special provisions to replace, modify, or supplement Division B provisions. Some provisions are required for all sales and others are specific to a particular sale.

Nonrecurring C - Special Division C provisions developed to meet extra ordinary management objectives on a particular sale area. Requires Regional Forester approval.

Water Quality Standards (WQS): Acceptable limits on water quality parameters that are set by the State, with review by EPA, that when enforced will meet the goals of the Clean Water Act. These standards are to be reviewed every 3 years for adequacy and reasonableness in protecting the designated beneficial uses of the waters of the State.

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Wetlands: "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328.3(b)). Wetlands identification and delineation involves determination of soil, vegetation, and hydrology indicators. In Alaska, the term "muskeg" is commonly applied to fens, bogs and other palustrine wetlands with peat soils.