

**FSH 2509.22 – SOIL AND WATER CONSERVATION HANDBOOK
CHAPTER 10 – WATER QUALITY MANAGEMENT FOR
NATIONAL FOREST SYSTEM LANDS IN ALASKA**

15 - PESTICIDE-USE MANAGEMENT

Pesticide-use on National Forest System lands could occur during the course of most National Forest management activities. Herbicides could be used for forest regeneration and protection, vegetation type conversions, utility corridor maintenance, and wildlife habitat improvement projects. Fungicides, insecticides, and rodenticides could be used in recreation sites for facility maintenance and the protection and convenience of the public. Piscicides are used cooperatively with state agencies for fisheries management. Each project is evaluated through the NEPA process by an interdisciplinary team. Pesticides are applied only by state certified applicators.

15.1 – PRACTICE: Pesticide-Use Planning

1. **OBJECTIVE.** To incorporate water quality and hydrologic considerations into the pesticide-use planning process.

2. **EXPLANATION.** This is an administrative practice. Occasionally alternatives utilizing pesticides are proposed as cost-effective means to meet project objectives. Projects may be in-service or may involve proposals by Forest Service permittees, or cooperators. The pesticide-use planning process is used to identify project objectives, concerns, treatments and preventive measures, to establish administrative controls, and to incorporate hydrologic considerations. The NEPA process addresses these considerations in terms of impacts, monitoring needs, mitigation measures (See BMP 15.5), and alternative treatment measures. Project work and safety plans specify management direction.

Factors considered in pesticide selection are: (1) purpose of the project; (2) application methods available; (3) target species; (4) timing of treatment; (5) pest location; (6) size of treatment area; and (7) need for repeated treatment. Practicability of application considers registration restrictions, form and method of application, topographic relief and areas to be avoided, and social acceptance of the project. The degree of risk considers: hazard to humans, hazard to fish, method of application, transportation and handling hazards, carriers needed, and chemical persistence.

3. **IMPLEMENTATION.** The interdisciplinary team evaluates the project in terms of potential site response, potential social and environmental impacts, mitigating measures needed to protect water quality, and the need and intensity of monitoring and evaluation. The responsible Line Officer then prepares the necessary NEPA documentation, Project Plan, and Safety Plan. Depending on the pesticide-use (FSM 2151.04), the Forest Pesticide-Use Coordinator reviews the documents along with the Pesticide-Use Proposal, form FS-2100-2, and makes recommendations for or against approval of the project.

4. **REFERENCES.** FSM 2150 and 2323; R-10 Supplement to 2100; State Hazardous Waste Management Plans; Material Safety Data Sheets.

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15.2 – PRACTICE: Follow Pesticide Label and EPA Registration Directions

1. OBJECTIVE. To prevent water contamination and risk to humans from pesticide application, cleaning of equipment, and disposal of pesticide containers.

2. EXPLANATION. This is a preventive practice. Label directions for each pesticide are detailed and specific, and include legal requirements for use.

The cleaning and disposal of pesticide containers and equipment must be done in accordance with Federal, State, and local laws, regulations, and directives, and in a manner which will safeguard public health, the beneficial uses of water, aquatic organisms, and wildlife. Containers are rinsed with water three times, the rinse water disbursed on the project site as soon as practical, and the containers taken to the designated disposal site. Application equipment is also rinsed and rinse water applied to the project site before the equipment is moved from the project area.

3. IMPLEMENTATION. Constraints identified on the label and other legal requirements of application are incorporated into project plans and contracts. Responsibility for ensuring that label directions and other applicable requirements are followed rests with the Forest Supervisor or a designate such as the Forest Pesticide-Use Coordinator. For contracted projects, it is the responsibility of the Contracting Officer to ensure that label directions and all other requirements are followed.

When the pesticide is applied by in-service personnel, the Forest or District Pesticide-Use Coordinator will locate proper rinsing and disposal sites, and will arrange for container disposal in an approved disposal site. When the pesticide is applied by a contractor, the contractor is responsible for proper clean-up and container disposal in accordance with label directions and Federal, State, and local laws.

The Project Contracting Officer will document that the proper disposal methods were followed.

4. REFERENCES. FSM 2157 Pesticide Storage, Transportation, Spills, and Disposal; FSH 6709.11, and 6709.12.

15.4 – PRACTICE: Pesticide Spill Contingency Planning

1. OBJECTIVE. To provide a response strategy for mitigating contamination of water from accidental pesticide spills.

2. EXPLANATION. This is an administrative practice. A contingency plan that contains a predetermined organization and immediate actions to be implemented in the event of a hazardous substance spill will be prepared. The plan lists notification requirements, time requirements for the notification, how spills will be handled, and who will be responsible for cleanup. Factors considered for each spill are: specific substance spilled, quantity, toxicity, proximity of spill to waters, and the hazard to life, property, and the environment, including aquatic organisms (See BMP 12.9).

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3. IMPLEMENTATION. The Pesticide Spill Contingency Plan will be incorporated into the Project Safety Plan. The NEPA process will provide the means for including public and other agency involvement in plan preparation. The plan will list the responsible authorities.

4. REFERENCES. FSM 6740, 7442, 7443, and 7460; Oil and Hazardous Substances Pollution Contingency Plans.

15.5 – PRACTICE: Protection of Water Quality, Wetlands, and Riparian Areas During Pesticide Application

1. OBJECTIVE. To minimize the risk of pesticide contamination of surface or subsurface waters, by identifying and protecting riparian areas, wetlands, and non-target areas. To determine and document that pesticides have been applied safely.

2. EXPLANATION. When applying pesticides, an untreated buffer will be left alongside surface waters, wetlands, and riparian areas. Factors to be considered in establishing the buffer width (beyond the minimum established by FSM and NEPA documents) are: beneficial water uses, adjacent land use, rainfall, temperature, wind speed, wind direction, terrain, slope, soils, geology, vegetative type, and aquatic life. Other considerations include: type of application, persistence on-site foliage, and characteristics of spray pattern, spray droplets, and carrier.

Pesticide spray applications will be accomplished according to a prescription that specifies the following: areas to be left untreated, buffer areas, type of spray and associated materials, equipment and method to be used, droplet size, spray height, application pattern, flow rate, terrain, and meteorological considerations. Hand spraying, with less associated risk, will have fewer application restrictions for drift control than aerial application.

As appropriate, monitoring will be conducted to provide feedback on placement accuracy, application amount, and water contamination that might occur from pesticide-use, so as to minimize or eliminate hazards to non-target areas or resources. Monitoring and evaluation methods include spray cards, dye tracing, and direct measurement of pesticide in or near water. Type of pesticide, equipment, application difficulty, public concern, beneficial uses, monitoring difficulty, availability of competent laboratory analysis and applicable Federal, State, and local laws and regulations are factors considered when determining the monitoring and evaluation needs.

3. IMPLEMENTATION. Protected areas will be identified and mapped by an interdisciplinary team and the Forest Pesticide-Use Coordinator during the NEPA process. Protection of untreated areas is the responsibility of the project supervisor for in-service projects and the Contracting Officer for contracted projects. The certified commercial applicators are briefed about location of protection areas. These areas are flagged or otherwise marked when necessary to aid in boundary identification.

The prescription and associated monitoring requirements are prepared by an interdisciplinary team and the Forest or District Pesticide-Use Coordinator during the NEPA process. The Line

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Officer is responsible for designating a project supervisor who is responsible for ensuring that the prescription is followed during application and for terminating application if the standards are exceeded. Technical staff familiar with pesticide monitoring will evaluate and interpret monitoring data in terms of compliance with State Water Quality Standards and the adequacy of project specifications.

4. REFERENCES. FSM 2526, 2527, 2245, 2150 and R-10 Supplement to 2100.

16 - RECREATION MANAGEMENT

Recreation on National Forest System lands falls into two general categories: developed and dispersed. Developed recreation is the term used to describe recreation areas that have been designed and built to provide some facilities to the user, such as campgrounds and picnic areas where tables, fireplaces, and toilets, have been provided. Recreational residences, boat ramps, cabins, resorts, and ski areas, are also considered developed recreation sites.

Dispersed recreation is outdoor recreation occurring outside of sites developed or managed for concentrated recreation use. Facilities are required to safeguard visitors, protect resources, enhance the quality of visitor experiences, and disperse users. Dispersed recreation includes the table-under-the-tree type of facility, toilets in otherwise undeveloped sites, trailheads, and trails.

Many developed and dispersed recreation activities are concentrated within or adjacent to streams, lakes, riparian areas, and wetlands. For example, high intensity sportfishing has the potential to severely impact streambanks and adjacent riparian areas. User related impacts could include: trampling of existing vegetation, soil compaction (and hence loss of plant viability), and physical damage to streambanks. Damaged and exposed streambanks are susceptible to accelerated erosion. This accelerated erosion generally leads to increased stream sediment loads, widening and shallowing of the channel bed, and reduction in stream substrate size where the erosion is occurring. Fish habitat and migration can be adversely affected, as well as riparian habitat along the shore. Riparian buffers are considered when planning and managing recreation activities within riparian areas (see BMPs 12.6 and 12.6a).

16.1 – PRACTICE: Recreation Facilities Planning and Location

1. OBJECTIVE. To protect soil and water resources through appropriate planning, design and location of recreational facilities.
2. EXPLANATION. This is an administrative and preventive practice. Recreation facilities may include developed sites and special-use facilities. Developed recreation facilities can create significant water quality degradation from erosion, sewage, sedimentation, and aquatic habitat trampling if not properly located, designed, and maintained.