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Office of Wetlands, Oceans and Watersheds
Washington, D.C. 20460

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U.S. Army Corps of Engineers
Washington, D.C. 20314

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MEMORANDUM TO THE FIELD -- Corps and EPA Regulatory Program Chiefs
SUBJECT: Application of Best Management Practices to Mechanical
Silvicultural Site
Preparation Activities for the Establishment of Pine Plantations in the
Southeast

This memorandum¹ clarifies the applicability of forested wetlands best management practices to mechanical silvicultural site preparation activities for the establishment of pine plantations in the southeast Mechanical silvicultural site preparation activities² conducted in accordance with the best management practices discussed below, which are designed to minimize impacts to the aquatic ecosystem, will not require a Clean Water Act Section 404 permit. These best management practices further recognize that certain wetlands should not be subject to unpermitted mechanical

silvicultural site preparation activities because of the adverse nature of potential impacts

associated with these activities on these sites.

This memorandum recognizes State expertise that is reflected in the development

and implementation of regionally specific best management practices (BMPs) associated

with forestry activities in wetlands. Such BMPs encourage sound silvicultural operations

while providing protection of certain wetlands functions and values. The U.S. Army

Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA)

believe that it is appropriate to apply the Clean Water Act Section 404 program in a

manner that builds from, and, is consistent with, this State experience. The Agencies will

support and assist State efforts to build upon these BMPs at the State level to ensure

that mechanical silvicultural site preparation is conducted in a manner that best reflects

the specific wetlands resource protection and management goals of each State.

Introduction

Forested wetlands exhibit a wide variety of water regimes, soils, and vegetation

types that in turn provide a myriad of functions and values. The States in the Southeast

contain forested wetlands systems that in many cases are also subject to ongoing timber

operations. In developing silvicultural BMPs, States have identified those specific

forestry practices that will protect water quality. This guidance was developed to

respond to questions regarding the applicability of Section 404 to mechanical silvicultural

site preparation activities. EPA and the Corps relied extensively on existing State

knowledge to protect aquatic ecosystems with BMPs, including the types of wetlands,

types of activities, and BMPs described below.

This memorandum reflects information gathered from the southeastern United

States, where mechanical silvicultural site preparation activities are associated with the

establishment of pine plantations in wetlands.³ As such, this memorandum, and

particularly the descriptions of wetlands, activities, and BMPs, necessarily focus on this

area of the country. However, the guidance presented is generally applicable when

addressing mechanical silvicultural site preparation activities in wetlands elsewhere in the

country.

Circumstances Where Mechanical Silvicultural Site Preparation Activities Require

a Permit

The States, in coordination with the forestry community and the public, have recognized that mechanical silvicultural site preparation activities may have measurable and significant impacts on aquatic ecosystems when conducted in wetlands that are permanently flooded, intermittently exposed, and semi-permanently flooded, and in certain additional wetland communities that exhibit aquatic functions and values that are more susceptible to impacts from these activities. For the wetland types identified in this section, it is most effective to evaluate proposals for site preparation and potential associated environmental effects on a case-by-case basis as part of the individual permit process. Therefore, mechanical silvicultural site preparation activities in the areas listed below require a permit. ⁴

A permit will be required in the following areas unless they have been so altered through past practices (including the installation and continuous maintenance of water management structures) as to no longer exhibit the distinguishing characteristics

described below (see "Circumstances Where Mechanical Silvicultural Site Preparation

Activities Do Not Require a Permit" below). Of course, discharges incidental to activities

in any wetlands that convert waters of the United States to non-waters always require

authorization under Clean Water Act Section 404.

1) Permanently flooded, intermittently exposed, and semi-permanently flooded

wetlands. The hydrology of permanently flooded wetland systems is characterized by

water that covers the land surface throughout the year in all years. The hydrology of

intermittently exposed wetlands is characterized by surface water that is present throughout the year except in years of extreme drought. The hydrology of semi-

permanently flooded wetlands is characterized by surface water that persists throughout

the growing season in most years and, when it is absent, the water table is usually at or

very near the land surface.⁵ Examples typical of these wetlands include Cypress-Gum

Swamps, Muck and Peat Swamps, and Cypress Strands/Domes.

2) Riverine Bottomland Hardwood wetlands: seasonally flooded (or wetter)

bottomland hardwood wetlands within the first or second bottoms of the floodplains of

river systems. Site-specific characteristics of hydrology, soils, vegetation, and the

presence of alluvial features elaborated in paragraphs a, b, and c below will be

determinative of the boundary of riverine bottomland hardwood wetlands.

National

Wetlands Inventory maps can provide a useful reference for the general location of these

wetlands on the landscape.

a) the hydrologic characteristics included in this definition refer to seasonally flooded or wetter river floodplain sites where overbank flooding has resulted in alluvial features such as well-defined floodplains, bottoms/terraces, natural levees, and backswamps. For the purposes of this guidance definition, "seasonally flooded" bottomland hardwood wetlands are characterized by surface

water that is present for extended periods, especially early in the growing season⁶

(usually greater than 14 consecutive days), but is absent by the end of the season

in most years. When surface water is absent, the water table is often near the land surface. Field indicators of the presence of surface water include water-stained leaves, drift lines, and water marks on trees.

b) the vegetative characteristics included in this definition refer to forested wetlands where hardwoods dominate the canopy. For the purposes of this guidance definition, riverine bottomland hardwoods do not include sites in which greater than 25% of the canopy is pine.

c) the soil characteristics included in this definition refer to listed hydric soils that are poorly drained or very poorly drained. For the purposes of this guidance definition, riverine bottomland hardwoods do not include sites with hydric soils that are somewhat poorly drained or that, at a particular site, do not demonstrate chroma, concretions, and other field characteristics verifying it as a hydric soil.

3) White Cedar Swamps: wetlands, greater than one acre in headwaters and greater than five acres elsewhere, underlain by peat of greater than one meter, and vegetated by natural white cedar representing more than 50% of the basal area, where the total basal area for all tree species is 60 square feet or greater.

4) Carolina Bay wetlands: oriented, elliptical depressions with a sand rim, either
a) underlain by clay-based soils and vegetated by cypress; or, b) underlain by peat of greater than one-half meter and typically vegetated with an overstory of Red, Sweet, and Loblolly Bays.

5) Non-riverine Forest Wetlands: wetlands in this group are rare, high quality wet forests, with mature vegetation, located on the Southeastern coastal plain, whose hydrology is dominated by high water tables. Two forest community types fall into. This group:⁷

a) Non-riverine. Wet Hardwood Forests -- poorly drained mineral soil interstream flats (comprising 10 or more contiguous acres), typically on the margins of large peatland areas, seasonally flooded or saturated by high water tables, with vegetation dominated (greater than 50% of basal area per acre) by swamp chestnut oak, cherrybark oak, or laurel oak alone or in combination.

b) Non-riverine Swamp Forests -- very poorly drained flats (comprising 5 or more contiguous acres), with organic soils or mineral soils with high organic content, seasonally to frequently flooded or saturated by high water tables, with vegetation dominated by bald cypress, pond cypress, swamp tupelo, water tupelo, or Atlantic white cedar alone or in combination.

The term "high quality" used in this characterization refers to generally undisturbed forest stands, whose character is not significantly affected by human activities (e.g., forest management). Non-riverine Forest wetlands dominated by red maple, sweetgum, or loblolly pine alone or in combination are not considered to be of high quality, and therefore do not require a permit.

7) Wet Marl Forests: hardwood forest wetlands underlain with poorly drained marl-derived, high pH soils.

8) Tidal Freshwater Marshes: wetlands regularly or irregularly flooded by

freshwater with dense herbaceous vegetation, on the margins of estuaries or drowned rivers or creeks.

9) Maritime Grasslands, Shrub Swamps, and Swamp Forests: barrier island wetlands in dune swales and flats, underlain by wet mucky or sandy soils, vegetated by wetland herbs, shrubs, and trees.

Circumstances Where Mechanical Silvicultural Site Preparation Activities Do Not Require a Permit

Mechanical silvicultural site preparation activities in wetlands that are seasonally flooded, intermittently flooded, temporarily flooded, or saturated, or in existing pine plantations and other silvicultural sites (except as listed above), minimize impacts to the aquatic ecosystem and do not require a permit if conducted according to the BMPs listed below. Of course, silvicultural practices conducted in uplands never require a Clean Water Act Section 404 permit.

The hydrology of seasonally flooded wetlands is characterized by surface water that is present for extended periods, especially early in the growing season, but is absent by the end of the season in most years (when surface water is absent, the water table is often near the surface). The hydrology of intermittently flooded wetland systems is characterized by substrate that is usually exposed, but where surface water is present for variable periods without detectable seasonable periodicity. The hydrology of temporarily flooded wetlands is characterized by surface water that is present for brief periods during the growing season, but also by a water table that usually lies well below the soil surface for most of the season. The hydrology of saturated wetlands is characterized by substrate that is saturated to the surface for extended periods during the growing season, but also by surface water that is seldom present.⁸ Examples typical of these wetlands

include Pine Flatwoods, Pond Pine Woodlands, and Wet Flats (e.g., certain pine/hardwood forests).

Best Management Practices

Every State in the Southeast has developed BMPs for forestry to protect water quality and all but two have also developed specific BMPs for forested wetlands. These BMPs have been developed because silvicultural practices have the potential to result in impacts to the aquatic ecosystem. Mechanical silvicultural site preparation activities include shearing, raking, ripping, chopping, windrowing, piling, and other similar physical methods used to cut, break apart, or move logging debris following harvest. Impacts such as soil compaction, turbidity, erosion, and hydrologic modifications can result if not effectively controlled by BMPs. States have developed BMPs that address not only types of wetlands and types of activities, but also detail specific measures to protect water quality through establishing special management zones, practices for stream crossings, and practices for forest road construction.

In developing forested wetlands BMPs, States in the Southeast have recognized that certain silvicultural site preparation techniques are more effective when conducted in areas that have drier water regimes. The BMPs stated below represent a composite of State expertise to protect water quality from silvicultural impacts. These BMPs also address the location, as well as the nature, of activities. The Corps and EPA believe that these forested wetlands BMPs are effective in protecting water quality and therefore are adopting them to protect these functions and values considered under Section 404.

The following forested wetlands BMPs are designed to minimize the impacts associated with mechanical silvicultural site preparation activities in circumstances where

these activities do not require a permit (authorization from the Corps is necessary for discharges associated with silvicultural site preparation in wetlands described above as requiring a permit⁹). The BMPs include, at a minimum, the following:

- 1) position shear blades or rakes at or near the soil surface and windrow, pile, and otherwise move logs and logging debris by methods that minimize dragging or pushing through the soil to minimize soil disturbance associated with shearing, raking, and moving trees, stumps, brush, and other unwanted vegetation;
- 2) conduct activities in such a manner as to avoid excessive soil compaction and maintain soil tilth;
- 3) arrange windrows in such a manner as to limit erosion, overland flow, and runoff;
- 4) prevent disposal or storage of lop or logging debris in streamside management zones -- defined areas adjacent to streams, lakes, and other waterbodies -- to protect water quality;
- 5) maintain the natural contour of the site and ensure that activities do not immediately or gradually convert the wetland to a non-wetland; and
- 6) conduct activities with appropriate water management mechanisms to minimize off-site water quality impacts.

Implementation

EPA and the Corps will continue to work closely with State forestry agencies to promote the implementation of consistent and effective BMPs that facilitate sound silvicultural practices. In those States where no BMPs specific to mechanical silvicultural site preparation activities in forested wetlands are currently in place, EPA and the Corps will coordinate with those States to develop BMPs. In the interim, mechanical silvicultural site preparation activities conducted in accordance with this guidance will not require a Section 404 permit

In order to ensure consistency in the application of this guidance over time, changes to the vegetation of forested wetlands associated with human activities conducted after the issuance of this guidance will not alter its applicability. For example, this guidance is not intended to establish the requirement for a permit for mechanical silvicultural site preparation where tree harvesting results in the establishment of site characteristics for which a permit would otherwise be required (e.g., where the selective cutting of naturally occurring pine in a Riverine Bottomland Hardwood wetland site with originally greater than 25% pine in the canopy results in a site "where hardwoods dominate the canopy"). In a similar manner, while harvesting of timber consistent with the requirements of Section 404(f) is exempt from regulation and natural changes (e.g., wildfire, succession) may change site characteristics, human manipulation of the vegetative characteristics of a site does not alter its status for the purposes of this guidance (e.g., removal of all the Atlantic White Cedar in an Atlantic White Cedar Swamp does not eliminate the need for a permit for mechanical silvicultural site preparation if the area would have required a permit before the removal of the trees).

Finally, the Agencies will encourage efforts at the State level to identify additional wetlands which may be of special concern and could be incorporated into State BMPs and cooperative programs, initiatives, and partnerships to protect these wetlands. To facilitate this effort, stakeholders are encouraged to develop a process after the issuance of this guidance to identify and protect unique and rare wetland sites on lands of the participating stakeholders. EPA and the Corps will monitor the application of this guidance, progress with conserving special wetland sites through cooperative programs and initiatives, and consider any new information, such as advances in silvicultural practices, improvements to State BMPs, or data relevant to potential impacts to wetlands, to determine whether the list of wetlands subject to the permit requirement should be modified or other revisions to this guidance are appropriate.

¹*This guidance is written to provide interpretation and clarification of existing EPA and Corps regulations and does not change any substantive requirements of these regulations. This memorandum is further intended to provide clarification regarding the exercise of discretion under agent agency regulations.*

²*Mechanical silvicultural site preparation a include shearing, raking, ripping chopping, windrowing, piling, and other similar physical methods used to cut, break apart, or move logging debris following harvest for the establishment of pine plantations.*

³*Information was considered from the following States in the Southeast: Virginia, North Carolina, South Carolina, Georgia, Florida, Tennessee, Alabama, Mississippi, Louisiana, and Arkansas.*

⁴*The community descriptions draw extensively from: Schafale, M.P., and A.S. Weakley. 1990. Classification of the Natural Communities of North Carolina. North Carolina Natural Heritage Program Raleigh, NC. 325pp.*

⁵*Cowardin, L.M., et al. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, Washington, DC. 131pp.*

⁶*Consistent With the 1987 Corps of Engineers Wetlands Delineation Manual, growing season starting and ending dates are determined by the 28 degrees F or lower temperature threshold.*

⁸*Cowardin et al, 1979.*

⁹*Contact the nearest Corps District listed at the end of this document for further information.*

Further Information

The Corps and EPA will work closely with the States, forestry community, and public to answer any questions that may arise with regard to this guidance. For further information on this memorandum, please contact Mr. John Goodin of EPA's Wetlands Division at (202) 260-9910 or Mr. Sam Collinson of the Corps of Engineer's Regulatory Branch at (202) 761-0199. The public may also contact:

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