

## Determination of the Portions of the Lake Long Tract Which Are Within the Jurisdiction of the Clean Water Act

Pursuant to the Court's order of January 17, 1979, a determination has been made of the portions of the Lake Long tract falling within the jurisdiction of the Clean Water Act. This document, together with the attached map (Exhibit 1) and the materials identified in the attached index, constitutes this determination. The Clean Water Act regulates discharges of pollutants into areas defined as waters of the United States by Section 502(7) of the Act. Regulations promulgated to implement Section 404 of the Act include within the definition of waters of the United States areas known as "wetlands." Wetlands are defined in 33 CFR Part 323.2(c) to be:

those areas that are inundated or saturated by surface or ground water 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.

Based on the evaluation of the tract documented by the reports and data listed in the index and application of the definition and regulation under the Clean Water Act, the areas of the subject tract determined to be waters of the United States are shown in green on the attached map entitled "Government Determination of Wetlands in the Lake Long Tract." The area determined herein to be waters of the United States approximates the area of annual flooding on this tract.

### *Methodology*

The following is a discussion of the methodology used in applying the regulatory definition of "wetlands" to the facts of this case. In applying the definition of wetlands, vegetation, inundation by water, and saturated soils are all relevant factors. While vegetation is perhaps the most important factor in applying the definition, it cannot be viewed in isolation. The preamble to the regulations (Fed.Register, Vol. 42, No. 138--Tuesday, July 19, 1977) explains that the reference to "vegetation typically adapted for life in saturated soil conditions" replaces an earlier version which had created a technical loophole by describing the vegetation as that which requires saturated soil conditions for growth and reproduction, thereby excluding many forms of plants that are prevalent in an inundated or saturated area but that do not require saturated soil from a biological standpoint for their growth and reproduction. Thus, the 1977 definition highlights the fact that wetland vegetation is not limited to species which require saturated soil (obligate hydrophytes) but also includes species which have adapted to life in saturated soil but may grow elsewhere (facultative hydrophytes). Because some of these latter species may sometimes grow in soils that are only rarely saturated, the significance of their presence should be established. This can be done by determining, from inundation or soil data, whether the moisture regime in which they are found is sufficient to require adaption. Sometimes obligate hydrophytes are found in association with facultative hydrophytes; sometimes the

majority of plants present are facultative hydrophytes. Therefore, our methodology to determine wetlands under the regulation considers all of the elements identified in the regulatory definition to ensure, first, that all appropriate areas are included, and second, that no inappropriate areas are included.

We disagreed with the methodologies suggested by the Vicksburg District of the Corps of Engineers, the National Forest Products Association, and the non-Federal defendants because they resulted in excluding areas containing species which meet the test established by the regulation. They concentrated on unambiguous species (obligate hydrophytes) and did not properly use soil and hydrology and other scientific data to verify the significance of the other species on the tract. The Environmental Defense Fund ("EDF") and Fish and Wildlife Service ("FWS") included some areas not meeting the definition. They recommended the inclusion of the high alluvial ridges on the basis of vegetation alone, because of the close functional relationship of the ridges to the adjacent wetland. These and other points of disagreement are detailed below.

### *Application of Methodology*

In order to apply this methodology to the Lake Long tract, additional scientists supplemented the data originally collected by the Vicksburg District of the Corps of Engineers (Vicksburg). The Vicksburg data included identification of species along a number of transects, and an extrapolation of inundation extent and duration based on a single reference point at the lower end of the tract. EPA also consulted an ecologist, a botanist, a plant taxonomist, two soils scientists and a geomorphology/hydrology expert.\* These scientists conducted site visits, made aerial observations, took soil samples, and reviewed existing records of the Soil Conservation Service and the Corps. Their conclusions were analysed with the assistance of John Clark, the executive secretary of the National Wetlands Technical Council.

Drs. Radford, Correll, Wharton, Frederickson, Kral, Palermo, Huffman, and Reed all agree that the entire tract is characterized by a prevalence of wetland vegetation (or was prior to the recent clearing operations.) They disagreed with Vicksburg's consultants (Drs. Holloway and Rhodes) who stated that only one-third is so characterized, because the latter did not give sufficient weight to other species typically adapted to saturated soil conditions, including green ash and Nuttall's oak. The reports of Drs. Holloway and Rhodes suggested that they were in fact still applying the obsolete standard of vegetation requiring saturated soil conditions. Vicksburg's selection of species to rely on is also inconsistent with the Preliminary Guide to Wetlands of the Gulf Coastal Plain, prepared by the U.S. Army Corps of Engineers Waterways Experimental station in consultation with EPA and with the practice of several other Corps of Engineers Districts. The list of species in Dr. Radford's report is more appropriate than that used by Vicksburg's consultants.

In order to verify the significance of non-obligate species appearing on the tract, the additional factors of saturation and inundation were considered. Since geomorphology, soil type, and sources, extent and duration of inundation influence the drainage pattern and duration of inundation, and therefore influence the moisture content of the soil, these

factors were examined. The work of Dr. Van Beek shows that the topography and alluvial characteristics of the site were such as to promote inundation of areas outside the areas delineated by Dr. Rhodes and Holloway at frequencies and durations sufficient to support typically adapted wetland plants. Further confirmation that these areas were sufficiently inundated to support wetland vegetation was provided by Dr. Whelan's evidence of soil impermeability and mottling indicating prolonged annual saturation of these soils.

Dr. Van Beek found a similar but slightly larger extent of expected annual flooding than did Vicksburg's expert for several reasons. For example, Dr. Van Beek concluded that because of poor natural drainage some areas retained water longer than others, and since Lake Long effectively marked the line between two distinct drainage systems, separate river gauges should be used in calculating the flooding and drainage for these two areas. Dr. Van Beek concluded that the Vicksburg estimates of extent, frequency and duration of flooding did not adequately consider the effects of watershed delivery or the intricate alluvial meander topography of the area, and therefore somewhat understated the role of inundation.

Those portions of the tract which the above evidence indicated were sufficiently saturated to support wetland vegetation and which the botanists [sic] reported did in fact support such vegetation are included as wetland areas in this determination, in accordance with the methodology described above.

In addition to hydrology, we considered the identity and distribution of soil types on the tract. Much of the tract consists of soil types generally recognized as wetland soils because of their tendency to hold moisture and drain poorly. Moreover, these soil types generally occur in the areas which flood most frequently. The high alluvial ridges, on the other hand, consist of soils, which are well drained and not considered wetland soils. In other areas wetland and probable non-wetland soils were so interspersed that it would be unrealistically difficult from a soils standpoint to separate them. Since those interspersed, non-wetland soils areas were characterized by wetland vegetation and met the inundation criteria, they were classified wetlands on that basis alone. Moreover, Dr. Patrick noted that while the various soil types on the Lake Long tract were similar to those in other flood plain areas in Louisiana, there was evidence of more flooding and wetter conditions on the instant tract than in those other areas. A majority of the tract consisted of soil types which are considered to support and confirm wetland vegetation. While Vicksburg concluded that soil types did not always correlate with wetland vegetation, this conclusion was based on Vicksburg's more restricted list of wetland indicator species. In accordance with the methodology outlined above, the areas which both our soils and vegetation data indicated were wetlands were included in the portion of the tract determined to be wetlands under section 404. Thus, the area shown as wetlands on Exhibit I consists of those areas where the evidence showed that the presence of wetland species was confirmed by either inundation or saturated soils, or (most commonly) by both.

The areas where inundation confirms the presence of typically adapted vegetation correspond very closely to the areas where soil type confirms the vegetation. This similarity reflects the interplay among these factors.

Because of the contour of the land and the different soils deposited at different times, the edge of the wetland determined in this way is not a straight line but instead resembles a series of fingers, which would be very difficult to trace on the land itself. Therefore, the line has been straightened out somewhat. This will greatly increase the ease of application and enforcement, while excluding only small "fingertips" of wetlands and including only small "fingertips" of ridges at the edge of the larger bodies of wetlands.

#### *Other major points considered*

Consideration was given to the propriety of the use by Vicksburg of land elevation above MSL to identify wetlands outside the specific areas where vegetation was analyzed. The consensus of the scientists consulted by EPA was that it was inappropriate to assume that the demarcation between wetlands and uplands would necessarily occur at a given elevation throughout the tract. \*\* Given the intricate alluvial-meander topography and the multiple sources of inundation, a projection of wetlands based strictly on elevation may overlook numerous higher areas meeting the vegetation, soil and inundation test of the regulation and may include other areas failing the test. Inundation of this area occurs not only as a result of Red River overflow but also from heavy rainfall and associated run-off from adjacent areas.

The National Forest Products Association and non-Federal defendant submissions generally agreed with the Vicksburg methodology and conclusions. Therefore, we generally accepted or rejected their material for the reasons given above. The Association and non-Federal defendants objected to EDF's approach on the grounds that, by calling all bottomland hardwoods wetlands, EDF was giving too much weight to inundation and/or was in actuality applying an inappropriate FWS definition. Since the instant determination does not use the FWS's National Wetlands Inventory definition and is not taking the position that all bottomland hardwoods are automatically section 404 wetlands (whether or not EDF and FWS do), these objections are not pertinent to this determination. As shown above, this determination is clearly based on the section 404 definition and reflects consideration of vegetation and soils as well as inundation. Inundation alone has not been used to determine the existence of wetlands.

We considered the submissions of EDF and the Fish and Wildlife Service, which generally pointed out the shortcomings in the Vicksburg approach discussed above, (e.g. undue reliance on obligate hydrophytes, insufficient use of inundation and soils data to confirm adaption of other species, and simplistic use of elevation). The area of major disagreement with EDF concerns the Lake Long ridge. While it may be true that this ridge "is not a system which would exist in isolation away from other wetlands," it does not meet either the inundation or soil elements of the regulatory definition and should not be included as part of a section 404 wetland determination.

Similarly, while we agreed with Fish and Wildlife that the regulation required consideration of more than just vegetation, and that the whole tract could be considered a system in some senses, we concluded that consideration of the relevant regulatory factors indicated

that only the large majority, not the entirety, of the tract was section 404 wetlands.\*\*\*

In sum, after considering the data collected in this case, pre-existing records of the Fish & Wildlife Service and Soil Conservation Service, the submissions of numerous scientists from many disciplines concerning both the facts in this case and the application of the regulatory definition to those facts, and the arguments of interested parties, we have concluded that the area delineated in green on Exhibit 1 constitutes the wetlands on the Lake Long tract for the purposes of the Clean Water Act.

### *Activities*

During the hearing on January 17, 1979, counsel for the government informed the Court that the government would submit a statement concerning activities requiring a section 404 permit in this case.

A section 404 permit is not required for the shearing of trees where no earth (other than de minimis ) is moved in the process and the trees are promptly removed through burning or other means. However, under the facts of this case as they are known to the government, a section 404 permit will be required for construction of drainage ditches in the wetland area delineated by the government in Exhibit I. While it is the government's understanding that the non-Federal defendants do not plan to build any dikes or levees in the waters of the United States, permits will be required if their plans change. Plowing, discing, and raking of the sort observed on the tract so far will not require a permit.