U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT
DIRECTIVES SYSTEM

Subject Number: TSR-10
Transmittal Number: 468
Date: 9/8/88

Subject: Use of Wetland Treatment Systems for Coal Mine Drainage

Approval: _____ **Title:** Deputy Director

1. PURPOSE.

This directive establishes guidelines for the use of wetlands to treat discharges from surface coal mining and reclamation operations.

2. DEFINITIONS.

a. Federal permitting entity. The Office of Surface Mining Reclamation and Enforcement (OSMRE) organizational unit with responsibility for receiving and processing applications for permits and permit revisions, i.e., the Western Field Operations office or the Division of Tennessee Permitting.

b. Wetland treatment system, man-made wetland, or constructed wetland. A passive biological effluent treatment system consisting of a shallow depression or impoundment or series of such depressions or impoundments designed and constructed to support hydrophilic vegetation for the purpose of removing dissolved metals and otherwise improving discharge quality.

3. POLICY/PROCEDURES.

a. Background and General Policy.

Wetland treatment systems have proven to be a useful low-cost means of treating acid mine drainage under certain circumstances, but experience has demonstrated that their effectiveness is highly dependent on maintenance of controlled inflow volumes and velocities, circulation patterns and water depth. Also, efficiency may vary on a seasonal basis. In addition, the capacity of any wetland for removal of dissolved metals may be finite, and not all water quality parameters, such as pH and manganese, can be adequately addressed.

The Federal regulations at 30 CFR 780.21(h) and 784.14(g) require that each permit application contain a hydrologic reclamation plan which must include both preventive and remedial measures to address any potential adverse hydrologic consequences identified in the determination of probable hydrologic consequences (PHC), to prevent material damage outside the permit area, and to meet applicable Federal and State water quality laws and regulations. Since, as discussed above, wetlands are dynamic organic systems, it is impossible to quantify how they will meet these requirements under all anticipated conditions. Therefore, chemical and other conventional treatment systems, which have a consistent capability to neutralize acid mine drainage and remove metals and which can respond or be adjusted to respond rapidly to changes in volume, are necessary elements of the hydrologic reclamation plan if the PHC determination indicates acid or toxic drainage may occur. Design of the treatment systems shall be based on the quality and quantity of flows predicted in the PHC determination.

Any wetland treatment system used to treat discharges during the excavation, coal removal and backfilling phases of mining must be supported by an operable chemical or other conventional treatment system to ensure that discharges are in accordance with applicable laws and regulations. If the wetland system itself provides sufficient treatment to meet effluent limitations, the chemical or other conventional system need not be activated. However, in the event the wetland system does not adequately treat the discharge, chemical or other treatment must be initiated. Wetland treatment systems installed to treat discharges from backfilled and regraded areas need not be supported by operable conventional treatment systems provided the operator documents that sudden changes in flow volume and quality are unlikely. However, the operator must include a design for such a system in the application and must construct the wetland system in a manner that preserves his or her ability to immediately install down-gradient effluent detention and conventional treatment facilities should the wetland system fail to achieve its purpose or cease to operate.

Sections 515(b)(10) and 516(b)(9) of SMCRA require that surface coal mining and reclamation operations be conducted to minimize disturbances to the prevailing hydrologic balance and to the quality and quantity of water in surface and ground

established in this directive.

e. Effect on Approved State Programs.

Unless a State program contains approved provisions or policies specifically addressing wetland treatment systems, the policies set forth in this directive shall be used as guidance when conducting oversight of a State's implementation of its approved program.

The establishment of a wetlands treatment system for discharges that would otherwise be in noncompliance does not justify final bond release because it is inadequate to demonstrate that all the requirements of the Act and regulations have been met. Any interpretation of a State program to allow final bond release under these conditions would render that program less stringent than SMCRA and less effective than the Federal regulations. Unless the issues can be otherwise resolved, the Field Office Director shall initiate the procedures prescribed by 30 CFR 732.17(c) to notify the State that it must amend its program to remedy this deficiency.

4. REPORTING REQUIREMENTS. None.

5. REFERENCES.

a. OSMRE Statement of Policy, "Floodplain Management and Wetlands Protection" (45 FR 49872-49874, July 25, 1980).

b. Executive Order 11990, "Protection of Wetlands," May 24, 1977.

6. EFFECT ON OTHER DOCUMENTS. None.

7. EFFECTIVE DATE. Upon signature by the Director.

8. CONTACT. Chief, Division of Regulatory Programs; (202) 343-5351.