desired precipitation of metals. After metals precipitation, the addition of some form of acid or carbon dioxide may be required to reduce the pH to acceptable levels. Polymer addition may be required to enhance the settling characteristics of the metal hydroxide precipitate. In general, this practice requires significant operator participation to ensure proper neutralization and/or precipitation and thus may not be cost effective for most storm water discharges.

Artificial Wetlands—This type of BMP system is gaining popularity as a method of treating process wastewater from inactive coal mines. They can be an effective system for improving water quality either alone or in conjunction with other treatment practices. The complex hydrologic, biological, physical, and chemical interactions that take place within a wetland result in a natural reduction and cleansing of influent pollutants. Wetland processes are able to filter sediments, and absorb and retain chemical and heavy metal pollutants through biological degradation, transformation, and plant uptake.

^Artificial wetlands are designed to maintain a permanent pool of water. Properly installed and maintained retention structures (also known as wet ponds) and artificial wetlands will be most cost-effective when used to control runoff from larger, intensively developed sites. These artificial wetlands are created to provide treatment but also provide a wildlife habitat, and enhance recreation and landscape amenities. Artificial wetlands are being intensely researched by the Bureau of Mines as a means of mitigating acid mine drainage.

EPA strongly discourages the use of natural wetlands as part of the treatment system because they are considered to be waters of the United States. The necessary controls, or BMPs, must be provided prior to discharging the storm water runoff to natural wetlands or other receiving waters.

In summary, a wide variety of BMPs are available for inactive coal mines and for use along haul roads and access roads at active coal mines. These measures range from simple low cost, low maintenance source reduction practices such as diversion structures to high cost, maintenance intensive practices such as wetlands treatment. Clearly, the selection of a practice or group of practices will be site-specific depending on conditions and potential impacts as well as the resources available at each site. A specific best available technology (or technologies) cannot be determined because of the

differences between sites and the quantities and characteristics of their discharges.

4. Storm Water Pollution Prevention Plan Requirements

Specific requirements for the pollution prevention plan for coal mines and coal mining related facilities are described below. These requirements must be implemented in addition to the common pollution plan provisions described in Section VI.C. of this fact sheet.

a. Contents of the Plan. Under the description of potential pollutant sources section, all coal mining and related facilities are required to describe all potential pollutant sources and provide the locations of these sources.

(1) A site map, such as a drainage map required for SMCRA permits, must indicate drainage areas and storm water outfalls from the potential pollutant sources as indicated in item l above. The map should provide, but not be limited to, the following information:

- (a) Drainage direction and discharge points from all applicable miningrelated areas, including culvert and sump discharges from roads and rail beds and also from equipment and vehicle maintenance areas, lubricants and other potentially harmful liquids
- (b) Location of each existing erosion and sedimentation control structure and other control measures for reducing pollutants in storm water runoff
- (c) Receiving streams or other surface water bodies
- (d) Locations exposed to precipitation which contain acidic or metal ladened spoil, refuse, or unreclaimed disturbed areas
- (e) Locations where major spills or leaks of toxic or hazardous pollutants have occurred
- (f) Locations where liquid storage tanks containing potential pollutants, such as caustics, hydraulic fluids and lubricants, are exposed to precipitation
- (g) Locations where fueling stations, vehicle and equipment maintenance areas are exposed to precipitation

The site map must also indicate the outfall locations and the types of discharges contained in the drainage areas of the outfalls (e.g. storm water and air conditioner condensate). In order to increase the readability of the map, the inventory of the types of discharges contained in each outfall may be kept as an attachment to the site map.

Under the measures and controls section, operators of the inactive and active coal mines are required to describe storm water management controls for coal mining-related facilities, including the following:

(2) Compliance with SMCRA Requirements. The Surface Mining Control and Reclamation Act (SMCRA) regulations require sediment and erosion control measures and practices for haul roads and most of the other active mining-related areas covered by this section. All such SMCRA requirements are also requirements of the pollution prevention plan and other applicable conditions of this section.

(3) Good Housekeeping Practices. The purpose of good housekeeping practices is to remove or lessen the potential pollution sources before they come into contact with storm water. This includes collection and removal of waste oils collected in traps; cleaning up exposed maintenance areas of spilled lubricants and fuels, and similar measures; and preventing the offsite movement of dust by sweeping or by road watering.

(4) Preventive Maintenance. A timely maintenance program should include: inspections for preventing breakdowns, corrosion of tanks and deterioration of pressure fuel or slurry pressure lines; periodic removal and disposal of accumulated solids in sediment traps; and replacement of straw bales and other control measures subject to weathering and deterioration.

(5) Inspections. For all SMCRA regulated active mining-related sites, which include most of the active facilities under this section, SMCRA authorities are required to conduct regular quarterly inspections. Coordinated inspections by the facility representative would be expected to take place either before, during or after the complete SMCRA inspections. Therefore, inspections by the facility representative would not be placing an undue burden on the facility. In addition, sediment and erosion control measures should be evaluated at least once yearly during a storm period of at least 0.1 inch rainfall where effectiveness can be evaluated first hand. Observations should also be made at this time of resulting impact of any settled solids in the receiving stream.

Inactive coal mines should be inspected at least once yearly, except where very remote, to maintain an appraisal of sediment and erosion control measures, determine outstanding problem areas, and plan for improved measures.

(6) Employee Training. There are no employee training requirements beyond those described in Section VI.C.

(7) Prohibition of Non-storm Water Discharges. Many inactive mines and portions of inactive mines are