

## Bear Run Phase I AMD Treatment Project Operation and Maintenance Plan

**Proper operation and maintenance of Best Management Practices (BMP(s)) is critical for their success and longevity. The goal of the project is the establishment of two aerobic wetlands for the treatment of a alkaline and high iron concentrated abandoned mine drainage discharge impacting the South Branch of Bear Run in Banks Township Indiana County.**

### *1) Components of the project*

The first aerobic wetland is for pretreatment of the discharge due to a heavy ferric iron concentration. This aerobic cell contains two deep cells and two shallow cells, two rock baffles, a discharge influent rock apron, a precast concrete inlet with grate for discharge effluent, and an emergency spillway rock apron with an 8” gate valve.

The second aerobic wetland is for the primary treatment of the discharge. This aerobic cell contains two deep cells and two shallow cells, four rock baffles, a discharge influent rock apron, and four 10’ wide spillways connecting each cell and for exiting the water to the South Branch of Bear Run.

In addition, to connect the two aerobic wetlands, a 40’ road boring, constructed as per Penn DOT requirements, will be constructed underneath SR 1053 (Lochvale Road).

### *2) Parties agree to perform all Maintenance Tasks as described in the chart below.*

<b>Operation and Maintenance Task</b>	<b>Schedule</b>	<b>Responsible Party</b>
Inspection and Maintenance of Inlet and Outlet Structures*	Quarterly from Winter-Summer. Monthly in the Fall due to leaf fall.	Evergreen Conservancy
Inspection of berm integrity (i.e. muskrats, beavers, etc.)*	Completed during the inspection of the inlet and outlet structures	Evergreen Conservancy
Short Period Opening of the 8” Gate Valve in the Emergency Spillway*	Twice per year	Evergreen Conservancy
Water Quality Sampling (Influent and Effluent Flow, pH, and Iron Concentration)*	Quarterly	Indiana County Conservation District
Iron Sludge Removal	Once per decade	Evergreen Conservancy in conjunction with Iron Oxide Recovery Inc.

\* Task should also be completed after high rainfall events.

### *3) Allowed Activities*

The Evergreen Conservancy and the Indiana County Conservation District are allowed to access the treatment system in perpetuity to complete the Operation and Maintenance tasks as described in the chart above. This includes heavy equipment (backhoe, highlift, haul truck, and press) access needed for the reprocessing and shipment of the

accumulated iron sludge which will be completed once treatment system performance declines.

#### *4) Prohibited Activities*

During operation and maintenance activities, only representatives from the Evergreen Conservancy and the Indiana County Conservation District and their agents will be allowed access to the portion of the property on which the treatment system has been constructed.

After initial construction, no other additional construction activities will take place without the written authority of the Pennsylvania Game Commission.

*5) The Grantee shall be considered to be in breach of this Agreement if he/she does not maintain and repair the project in compliance with this agreement or willfully neglects any other terms of this agreement.*

*6) The Grantee agrees to comply with all Federal, State, local laws, rules and regulations.*

*7) The Grantee shall be responsible for all normal, routine maintenance and normal, routine repair of the site and project.*

#### *8) General Comments*

The Bear Run Phase I AMR Treatment Project should be very easy to operate and maintain due to the alkaline character of the water. The most important task to complete would be the inspection and maintenance of all inlet and outlet structures, particularly during the leaf fall in autumn as leaves may cause blockages. In addition, in any system such as this, habitat is created for aquatic mammals such as muskrats and beavers. Occasionally, these animals can do damage to a passive AMD treatment system. If damage is noticed during inspection, trapping and removal of the animal may be warranted and the Pennsylvania Game Commission should be contacted for suggestions.