

Friday Afternoon Sessions

Deciphering your Drainage

This session is part one of our Friday afternoon sessions. Combined with the “Treatment Systems Breakout Sessions”, these sessions will give you hands on experience in figuring out the kinds of passive treatment systems that may be appropriate for your AMD discharges.

AMD discharges are all different in their chemistries, flows, and the site characteristics. All of these things need to be considered in choosing an appropriate method for treating the discharge. To do that you need to be armed with

information. To make the most of this session, you should bring the results of **chemical testing of your discharge, its flow rate, and a topographic map** of the land surrounding the discharge.

Below is a table for transcribing your testing data. Please complete as much of the table as possible. Note that 4 forms of iron are listed because various labs report these values differently. You will only have one or two reported. Bring a copy of the lab’s results to be safe.

Discharge Name ⇒	1	2
Test ↓	Value	Value
pH		
Total Acidity (mg/L as CaCO ₃)		
Total Alkalinity (mg/L as CaCO ₃)		
Total aluminum (mg/L)		
Dissolved iron (mg/L)		
Total iron (mg/L)		
Ferrous iron (mg/L)		
Ferric iron (mg/L)		
Dissolved oxygen (mg/L)		
Flow (gal/min)		

Treatment Systems Breakout Sessions

A. Aerobic Wetlands

Appropriate when discharge has net alkalinity, high metals concentrations and enough land is available. Metals precipitate and are retained in wetland.

B. Anoxic & Oxic Limestone Drains

ALD’s are appropriate for acidic discharges emanating directly from a flooded mine having very little dissolved oxygen, ferric iron, or aluminum. Iron, if present, should be almost exclusively in the ferrous form. ALD’s add alkalinity in a buried, sealed trench filled with limestone.

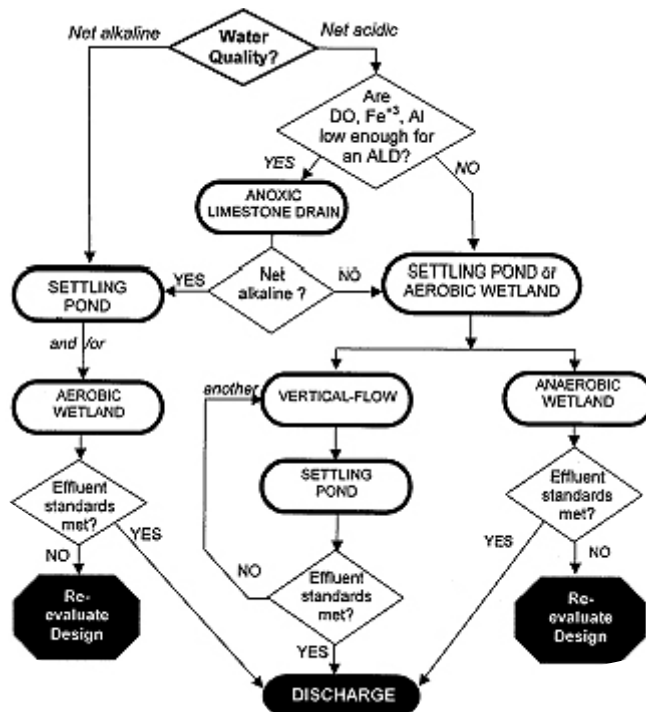
OLD’s are similar to ALD’s but can have higher levels of dissolved oxygen and metals. Periodic flushing is required.

C. Diversion Wells

Appropriate for adding alkalinity to a stream. The stream needs to have a fair gradient (slope) for the diversion well to function. Doesn’t require much space, but accessibility to the site and regular maintenance are required.

D. SAPS & Vertical Flow Ponds

For nastier discharges having acidity and metals, these ponds add alkalinity to contaminated water first in an organic compost layer, then in a limestone layer. They are generally followed by other treatment elements like aerobic wetlands to precipitate metals. These systems require sufficient space and periodic maintenance.



This flow chart is commonly used to aid in selecting a passive treatment methodology.