



Use of a “Doser” to Treat Acid Mine Drainage In Thomas Fork

What is Acid Mine Drainage?

It is water that is discharged from coal mining or mine-related operations which contains high levels of dissolved iron and aluminum sulfates in conjunction with pH values often less than 4 (acidic). It is produced when oxygen dissolved in water reacts with pyritic (iron sulfide) materials found in association with most coal deposits. Acid mine drainage (AMD) degrades the water quality of streams and water supplies, often to the point of eliminating all biological activity within the stream contaminated with AMD.

What Does a Doser Do?

A doser system treats acid mine drainage in streams. It is considered a type of active treatment.

How?

A lime doser releases controlled amounts of lime products into the flowing stream as a means to increase pH and reduce acidity of the water. The chemical reaction between the limestone products and the acidic water results in precipitation of metals (primarily iron) from the water. The metals settle onto the streambed as a precipitate and are flushed downstream. This restoration method was chosen for this site, in lieu of other larger “passive” treatment systems, due to the limited space, the topography of the associated tributaries, and the high level of effectiveness of dosers.

The water-powered doser may require installation of a water intake dam and riser in the stream along Bailey Run Road. A PVC intake pipe would transport water to operate the water wheel and dosing auger within the silo of the doser unit. A concrete mixing ditch would be constructed to allow time for the lime to mix into the water. Access to the doser will require improvements to the existing area and the creation of a turnaround pad, which would be maintained for periodic refilling of the silo. Depending on the model, the doser can hold up to 50 tons of lime products. Service life of a doser can exceed 30 years.

