

## Vocabulary

**acid** – a proton ( $H^+$ ) donating substance with pH below 7.

**acid mine drainage (AMD)** – drainage of water from areas that have been mined for coal or other mineral ores. The water has a low pH because of its contact with sulfur-bearing material and is harmful to aquatic organisms.

**acid rock drainage (ARD)** – drainage of water from rock formations – abandoned mines, natural occurrences, springs and hydrothermally (heat+water) altered areas. The water has a low pH because of its contact with sulfur-bearing material and is harmful to aquatic organisms.

**acidity** – quantitative measure of a solution's ability to neutralize a strong base to a designated pH.

**active remediation** – reclamation technique for acid mine drainage that requires continuous electrical or chemical inputs ongoing operation maintenance. These methods can eliminate the cause of the problem.

**alkalinity** – quantitative measure of a solution's ability to neutralize a strong acid to a designated pH.

**base** – a hydroxide ion ( $OH^-$ ) donating substance with pH above 7.

**buffer** – a solution which resists changes in pH.

**density** – mass per unit volume of a substance; a physical property of matter.

**dissolved oxygen** – concentration of oxygen dissolved in water, expressed in mg/l or as percent saturation.

**mine effluent** – drainage from mine workings.

**neutralization** – salt-forming reaction between an acid and a base.

**non-point source pollution** – pollution from a source that can not be directly pointed out, like stormwater runoff from land use.

**overburden** – the sedimentary rock material that covers coal seams, mineral veins, etc.

**passive remediation** –reclamation technique for acid mine drainage that utilizes naturally occurring chemical and biological reactions and does not require continuous electrical or chemical inputs or frequent maintenance. These methods do not eliminate the cause of the problem.

**placer** – a deposit of sand, dirt, or clay, often in an active or ancient stream bed, containing fine particles of gold or silver, which could be mined by washing (rhymes with “passer”).

**pH** – a measure of how acidic or basic a substance is; descriptor of hydronium ion ( $\text{H}_3\text{O}^+$ ) concentration.

**point source pollution** – pollution that can be identified from a single source, like smoke coming out of a smokestack.

**pyrite** –  $\text{FeS}_2$ , also known as “fool’s gold”; a mineral composed of iron and sulfur that is often found in association with coal seams and plays a role in the formation of acid mine drainage.

**sedimentation** – the process of sediment deposition from out of a suspension or solution.

**sulfuric acid** –  $\text{H}_2\text{SO}_4$ ; a colorless, nearly odorless, heavy, oily, corrosive liquid; produced by pyrite to create acid mine drainage.

**tailings** – materials left over after the process of separating desired mineral from unwanted materials.

**titration** – a method commonly used in chemistry laboratories using a solution of a known concentration to analyze and determine the unknown concentration of a second solution.

**viscosity** – measurement of the flow properties of a material expressed as its resistance to flow.

**waste rock** – valueless rock that must be fractured and removed in order to gain access to ore.