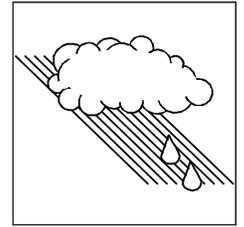


Geology and Geochemistry of Acid-Forming Materials



This course is designed to provide participants with specific information, presented in a highly interactive manner, on analyzing and examining how geology and mineralogy influence water quality. A detailed discussion is presented on acid and alkaline weathering processes. Participants will be introduced to overburden drilling, sampling, and characterization. Participants will be given a variety of strategy and implementation lab methods and interpretations for overburden: static and leaching tests. Participants will use inquiry, problem-solving, and feedback methodologies for previous mining as a prediction tool, mine drainage prevention, and treatment techniques.

Duration: 4 Days

TOPICS COVERED

Geological and Mineralogical Influences on Water Quality

- ▼ Examine and define geologic controls on the formation of pyrite and carbonate minerals.
- ▼ Assess geologic controls on mineralogy that influence mine drainage chemistry.

Acid and Alkaline Weathering Processes

- ▼ Interpret and illustrate chemistry of pyrite weathering.
- ▼ Interpret and illustrate chemistry of carbonate mineral weathering.
- ▼ Interpret and illustrate other weathering processes (silicates, cation exchange).

Sampling and Characterization of Overburden Materials

- ▼ Employ and calculate sampling strategy.
- ▼ Identify types of sampling and their advantages and disadvantages (air rotary, core, highwall).
- ▼ Class exercises (construction of theison polygons, etc.)

Laboratory Methods for Overburden Analysis

- ▼ Acid base accounting
- ▼ Leaching (kinetic) tests

Acid Drainage and Water Chemistry

- ▼ Fundamental principles and measurements
- ▼ Other ions common to mine drainage

Prevention Methods

- ▼ Special handling
- ▼ Water management

Geochemical Tests for Mine Drainage Prediction

Mitigation of Acid-Forming Materials

WHO SHOULD ATTEND: Permitting specialists, inspectors, and AML specialists. This course is designed for individuals who have had advanced high school chemistry or a basic college chemistry course. At least six months' experience on a regulatory or reclamation program staff is recommended.

Field Exercise: Hard hat, steel-toed boots, and safety glasses are required.

National Technical Training Program: (202) 208-2769