



Surface and Groundwater Hydrology

This course provides participants with information on the basic effects of surface coal mine operations on surface and groundwater hydrology.

Duration: 3½ days

TOPICS COVERED

Introduction and Basic Concepts

▼ Introduction

- ◇ *News Articles (Water Shortage)*
- ◇ *Water in the Forest (Video)*
- ◇ *Movement of Water in Nature*
- ◇ *Hydrographs (Examples & Exercise)*

Control of Water and Sediment

▼ Overview

▼ Sediment Ponds

- ◇ *Work as a Sediment Control*
- ◇ *Pond Design Factors*

Slides Presentation

▼ Surface Water Example

Groundwater Hydrology

▼ Groundwater System

- ◇ *Movement of Groundwater*
- ◇ *Groundwater Chemistry*
- ◇ *Class Problem*

Effect of Mining on Groundwater

▼ Physical Effects of Mining

▼ Conceptual Models

Example Case: Mining Effect On Groundwater

▼ Actual Case

Acid Mine Drainage

▼ AMD Process

- ◇ *Oxygen Pathway of AMD*
- ◇ *AMD Ferric Iron Pathway*

▼ AMD Prevention

▼ AMD Treatment

▼ Passive Treatment Systems

Slides/Equipment Demo

Surface/Groundwater Monitoring

- ▼ Objectives
- ▼ Baseline Data (pre, active & post)
- ▼ Representative Samples
- ▼ Measuring Techniques
- ▼ Groundwater Monitoring (Wells)
- ▼ Surface Water Measurements
- ▼ Flow Quantity Measurements
- ▼ Monitoring Wells (Installation)

Data Interpretation (QA/QC)

- ▼ Introduction
- ▼ Review of Sample Data
- ▼ Complete Analysis
- ▼ Quality Assurance (QA) Quality Control (QC)
- ▼ Graphical Methods of Sample Analysis
- ▼ Class Problem

WHO SHOULD ATTEND: Inspectors, permit bonding, assessment and AML program specialists, others who may need a basic course. Recommend six months minimum experience on the job.

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

National Technical Training Program: (202) 208-2769