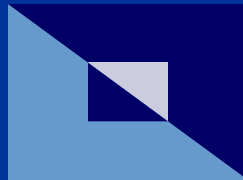


*Short Course: Mine Water Treatment –  
Technologies, Case Studies and Costs*

*Selecting a Mine Water Treatment  
Process*

*May 3, 2015*



# Steps in Selecting a Process

- Explore/confirm design criteria
- Review potential treatment technologies
- Develop process flow sheet
- Develop budgetary capital and operating costs
- Perform bench and/or pilot tests

# Design Criteria

## 1. Flow

- Maximum (design capacity)
- Average (for determining operating costs)

## 2. Influent concentrations

- Are they already known?
- How well can they be estimated/modeled?

## 3. Effluent concentrations

- Are permit limits already established?
- If not, can they be estimated?

# *Water Analysis*

- Total vs. dissolved (esp. for metals)
- Will determine physical treatment vs. chemical/biological

# *Flow Sheet and Costs*

- Typically develop for several treatment options
- Capital costs
- Operating costs

# *Capital Cost Information*

- Previous projects: empirical data
- Equipment suppliers
- Colleagues

# *O&M Cost Information*

- Previous projects
- Equipment suppliers
- Chemical suppliers

# *Bench/Pilot Testing*

- Will determine whether selected technology can meet discharge limits
- Can provide valuable information for full-scale capital and operating costs
- May be required by agencies
- Bench testing is simpler, shorter and less expensive than pilot testing
- Jar tests or column tests?



# *Possible Jar Tests*

- Chemical precipitation
- Coagulation/flocculation
- IX

# *Possible Column Tests*

- Leach testing for nitrate/ammonia
- IX
- Biological
  
- Best time for addressing possible WET testing (large water volume required)