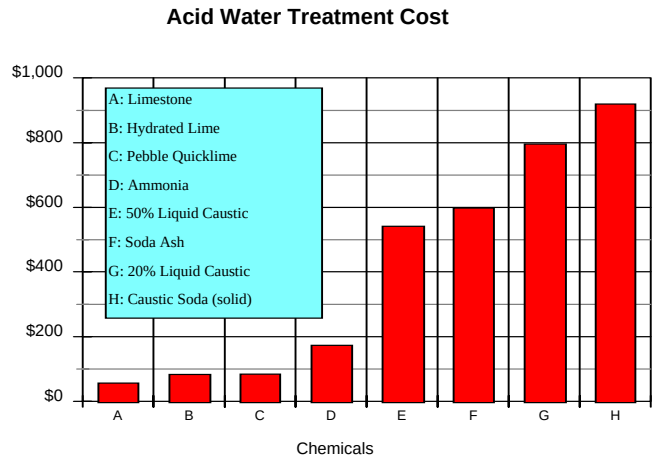
WATER CONDITION AND CHEMICAL TREATMENT
MINER'S TRAIL SITE #1

NORDHORN LAKE WATER CONDITION

Acid Mine Drainage (AMD) results from acid mine spoil being exposed to water and air. Water polluted by AMD typically has a low pH and a high concentration of iron. Nordhorn Lake is an example of an AMD affected site (see table on the right side for representative water data). The water at Nordhorn Lake is very acidic (pH 3.09), and no aquatic species can survive under this condition. The picture on the right shows unusually clear water with a reddish brown sediment which is a visible indicator of acid water. Because if it extreme acidity, this lake no longer provides habitat that is capable of supporting any fish life.

Field Sample Data	*at Nordhorn Lake*
Sample Date	October 13, 1999
pH	3.09
Total Iron (Fe)	233.0 mg/L
Net Acidity	44.65 mg/L

The chart below is a comparison of cost for possible treatment chemicals assuming a net acidity of 44.65 mg/L and a volume of 10 million gallons.



CHEMICAL TREATMENT

Different kinds of alkaline materials could be used to neutralize the mine water in order to bring back the aquatic life in the lake. For instance, if you were to compare Ammonia (D) and Solid Caustic Soda (H), the chart on the left shows that you would need about $170 for Ammonia (1,140 lbs) or $920 for solid Caustic Soda (2,700 lbs) to treat ten million gallons of acid mine drainage with a net acidity of 44.65 milligrams per liter. In deciding which chemicals to use, you also need to consider other factors like handling safety, availability, and waste volume of sediment generated and perform overall cost comparison.