



Providing Treatment Solutions for Air, Water, & Land

www.TheiaLLC.com

(888)330-2260

Acid Mine Drainage Treatment *Made Simple*



Theia Water offers innovative solutions for water treatment that are designed for the site and the customer. While the word “custom” normally means expensive, that is now how Theia does it. We engineer a solution for the site by working with you and with your site, utilizing what is already there when possible to reduce capital costs. Often there is infrastructure like tanks or lagoons, etc that can be utilized as part of the treatment plan.

Acid Mine Drainage (AMD) mostly contains high levels of iron as well as sulfide compounds. Secondary contaminants include manganese as well as other metals. Additionally, the water is typically low in pH as well as alkalinity.

Theia offers solutions for these issues which can be utilized alone or combined to treat all of these issues. We can utilize existing lagoons and ponds and offer an inline pretreatment system which can pH adjust, add alkalinity, oxidize iron and manganese and other metals, and add polymers inside of a single pipe.

Like all the solutions that Theia Water offers, our AMD treatment technologies are designed to be simple to operate and require little attention from the operator and, of course require little maintenance.





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Iron & Sulfide Oxidation: Theia’s Oxygenator system is a simple device that uses ambient air to directly oxidize compounds like iron, manganese and Sulfides. Water is pumped through the nozzle which draws in air to oxidize these compounds while saturating the water with dissolved oxygen. The Oxygenator is also a high turbulence mixer.

pH & Alkalinity: Prior to the oxidation step, the pH can be adjusted using Theia Water’s unique Icarus media. The media will be loaded into specially designed reusable cartridges. The media adds calcium to the water to raise the pH & increase alkalinity, while it also precipitates out sulfates. The pH can be increased sufficiently to remove a high percentage of the manganese if that is desirable.

Settling: After the oxidation step, one or two polymers will be added to make the precipitated solids settleable. This step allows the use of existing lagoons or pond. Theia offers a simple design for converting the high velocity water from the mixing step to a laminar low velocity discharge to allow settling of the treated solids.

Sludge Handling: typically for large flows, a lagoon or pond is used for the settling of the solids. Theia’s [EZ Sludge System](#) is a simple, cost effective technology for handling and dewatering of the solids generated. These solids can be directly dumped into a rolloff container or into a dump truck.

