



Project Overview

FRP REPAIR OF CONCRETE TANKS IN MINING FACILITY

Name: Tyrone Mines
Type: Industrial Facility
Location: Tyrone, New Mexico
Completed: November 2005

PROBLEM

The Tyrone Mines are an open-pit copper mining operation owned by the Phelps Dodge Mining Company. Concrete tanks used for copper separation processes required liner and buffer sheets due to the corrosive acidic solution employed.

Severe corrosion of the tanks had caused the existing buffer and liners sheets to crack and leak. As a result, the acidic solution in the tanks was able to contact the concrete walls eroding the concrete and corroding the steel reinforcement, significantly reducing the walls strength. Also the cedar board tank flooring warped, allowing the acidic solution to damage the tank floor.



SOLUTION

A special QuakeWrap® FRP Repair System was developed to line the concrete tank walls. QuakeWrap® composite glass fabric was used along with a protective mat (to protect glass fabric against damage due production equipment). The new liner increased the wall strength while containing the acidic solution within the glass fiber system, effectively preventing future corrosion damage.

The installed system eliminated the use of old liners and buffer sheets and significantly reduced the maintenance down time associated with this older system.



Technical Highlights

- Tanks containing 15% sulfuric acid @ 140°F
- Damaged tanks were weakened and acidic solutions leaked
- Patent-Pending system was installed with a 5-year warranty
- Quick repair with little downtime
- Tanks are stronger than original “as-built” condition
- Long-lasting repair reduced maintenance costs

Credits

General Contractor: B&W and TMI, Morenci, AZ



“The FRP Retrofit Experts”