

METAL TREATMENT FACILITY ELIMINATES WASTEWATER

The Facility

A specialty metals facility located in Euclid, Ohio rolls, forms, cuts and presses specialty metals for the aircraft and aerospace, auto and electrical industries. This plant specializes in high value molybdenum and tungsten, as well as copper parts.

The Problem

As a result of the metal rinsing processes in the facility discharged water into the local sewer system. Eventually, the Environmental Protection Agency declared that the wastewater could no longer be discharged because the wastewater contained heavy metals at concentrations exceeding new NPDES permit levels.

The Solution

Aqua-Chem ICD supplied a Four-Effect Zero Liquid Discharge System. The energy efficient system processes 14 gpm of rinse water and produces approximately 25 lb/hr of solid waste. About 99% of the original wastewater is recovered as high quality water containing less than 10 ppm of total solids, which is recycled and reused in the plant or discharged. A licensed waste contractor was going to be used to dispose of the solid waste offsite in a landfill. The facility owner, however, located a reclaimer company that pays for solid waste and then reclaims the valuable metals.

The Results

The system was installed on a fast-track seven month schedule on a turnkey basis by Aqua-Chem ICD, including civil work and the supply of a building. The system came online in May 1990 and has operated at a lower energy consumption than expected. Due to scaling salts, the unit was designed to be cleaned every 30 days; however, this cycle has been regularly lengthened. Changes in wash systems within the metals plant required the addition of a foam inhibitor.



Technical Data

| | |
|------------------------------|------------|
| CA | 400 ppm |
| Na | 2000 ppm |
| Mg | 100 ppm |
| SO ₄ | 2000 ppm |
| Cl | 5000 ppm |
| SiO ₂ | 20 ppm |
| Water Evaporation Rate | 6920 lb/hr |
| Feed Rate | 14 gpm |
| Recovered Water | 13.8 gpm |

