Mining & Metals

SAMCO
Separation from the ordinary

PROJECT BRIEF

Steel Manufacturing Facility Recycles Its Industrial Wastewater with Ultrafiltration Technology

PROJECT OVERVIEW

A Midwest steel manufacturing plant needed to replace its aging wastewater treatment system, while also improving its water recycling capabilities. SAMCO worked with the facility to design and manufacture an automated ultrafiltration (UF) system to treat the client's highly contaminated wastewater. SAMCO's compact design reduced the previous system footprint by 75%, while drastically reducing metal and phosphate contaminant levels to meet stringent specifications for process water.

SCOPE OF SERVICE

SAMCO worked with the client facility to conceptualize, develop, bid, and execute a custom wastewater treatment system to meet the client's water recycling goals. SAMCO provided process advice, system design and sizing recommendations, quotes for project cost, and pilot study services to test system efficacy before fabricating and delivering the full-scale system.

SOLUTION

To meet the client's goal of recycling metals- and phosphate-contaminated wastewater, SAMCO custom-designed a treatment solution to replace an existing physical-chemical system. The new system leverages dead-end UF technology with fully-automated backwash cycles, flux recovery, and a unique membrane cleaning process to maximize UF membrane performance despite a challenging wastewater. The system offers a capacity of 400 GPM up to 1000 GPM peak, and has minimized the client's need to source fresh process water, and dramatically reduced the client's wastewater discharge volumes.

TECHNOLOGY

SAMCO's project deliverables and equipment included:

- Dead-end UF unit
- Automated backwash & enhanced chemical cleaning system
- Front-end reactor with pre-screening for solids reduction
- Forwarding pumps
- Final collection tank
- Three-skid design for turnkey startup

RESULTS

Wastewater samples taken before and after UF treatment indicate excellent contaminant reduction:

	Before UF (mg/L)	Percent Removal
Al	20 - 50	99.84 %
Fe	20 - 50	99.9 %
Mn	0.1 - 2	95.0 %
P	1 - 3	76.0 %

OVERVIEW

Industry
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Location
Midwest

Objective
Reduce water consumption by implementing a new UF system to treat recycled industrial wastewater for reuse as process water.

Solution
400 - 1000 GPM Dead-End Ultrafiltration System

Looking to increase the efficiency of your process? Is process separation an issue?
Contact us today at www.SamcoTech.com • askengineers@samcotech.com • (716) 743 9000