

Treating the hard to treat

Case Study: AquaPure

Creating a Leaner Water Treatment Process

The Challenge

IMC's wastewater treatment system faced multiple complex challenges in managing their industrial discharge requirements. The existing system relied heavily on four different chemical treatments to remove copper and maintain appropriate pH levels, creating an unnecessarily complicated and resource-intensive process.

Despite the excessive use of chemicals, particularly their ferric-based coagulant, the facility struggled to consistently meet the mandated 2.5 ppm copper limit. This inefficient process required constant attention from operators and produced large quantities of iron-rich sludge that necessitated costly disposal procedures. The combination of high chemical consumption, labor-intensive operations, and substantial waste generation was fundamentally at odds with lean manufacturing principles and created significant operational inefficiencies and environmental concerns.

The Approach

Hubbard-Hall initiated a comprehensive, multi-faceted approach to address IMC's wastewater treatment challenges. Their strategy began with a detailed analysis of the existing treatment processes, chemical usage patterns, and operational procedures. Based on this assessment, they developed a two-pronged solution combining technological innovation with human capital development.

The first major change involved replacing the traditional ferric coagulant with a more advanced calcium-based solution, **AquaPure Cal 40,** used in conjunction with **AquaPure T-500** metal precipitant.

Executive Summary

IMC partnered with Hubbard-Hall to streamline wastewater treatment, reducing sludge, costs, and inefficiencies.

- IMC's system was complex, requiring multiple chemicals yet failing to meet copper discharge limits.
- Hubbard-Hall introduced AquaPure Cal 40 and T-500, replacing ferric coagulant for better copper removal.
- Operators received hands-on training to improve dosing precision and system efficiency.
- The new process cut chemical use, reduced waste, and aligned with lean manufacturing goals.

This new chemical combination was specifically selected for its superior copper removal capabilities and reduced sludge generation properties.

The second component focused on extensive staff development, providing comprehensive training in wastewater treatment principles, chemical dosing strategies, and pH management techniques. To ensure optimal system performance, Hubbard-Hall went beyond typical consultation services by working directly with equipment manufacturers to fine-tune the new treatment system, creating a fully integrated solution that addressed both chemical and mechanical aspects of the process.

The Outcome

The implementation of Hubbard-Hall's solutions yielded remarkable improvements across multiple operational dimensions. The new calcium coagulant system demonstrated significantly superior copper removal efficiency while simultaneously reducing chemical consumption compared to the previous ferric-based treatment.

The enhanced staff training program resulted in operators achieving consistently better pH control and lower discharge levels through more precise and efficient dosing practices. The streamlined process successfully eliminated one treatment chemical from the system, leading to reduced inventory requirements and decreased storage space needs, aligning perfectly with lean manufacturing principles. Perhaps most significantly, the reduction in iron content within the treatment sludge opened new possibilities for recycling programs, potentially transforming a costly waste stream into a recoverable resource.

This comprehensive improvement in wastewater treatment efficiency not only enhanced IMC's operational performance but also strengthened their position as an industry leader in sustainable manufacturing practices. The success of this initiative demonstrated how targeted process optimization and staff development could simultaneously address environmental compliance, operational efficiency, and waste reduction goals.

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