

Major American Oil Refinery Upgrades Automated Cooling Water Treatment Systems

A major refinery in the southeastern U.S. needed to begin upgrading its water treatment systems. The refinery consists of seven areas, each served by separate cooling systems. Each of these systems will be upgraded in this ongoing project.

Main Objective

For each of these systems, the client required integration of comprehensive and efficient automation controls. These upgrades would include critical functions, including monitoring of water quality, control of cooling system blowdown, considerations for operator safety and ergonomics, measurement of tower makeup water flow and regulation of chemical addition. A precision integration was required due to the complexity of these multiple stations.

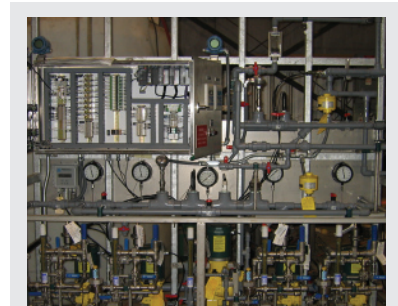
Customer Results

The first of seven phases is nearing completion, and the client has approved the remaining phases based on the strength and performance of the initial system upgrades.

Application Description

The overall redesign of the cooling system sampling, chemical handling, monitoring and control systems includes:

- **Operating Philosophy and Simplified Process Flow Diagram**
- **Detailed Mechanical Engineering**
 - General layout of new lab building, equipment and piping
 - Development of P & IDs
 - Equipment Selection
 - Piping Isometrics
- **Detailed Civil Engineering for Concrete Structures**
 - Chemical containment basins
 - Building foundations
 - Piping support footers
- **Detailed Instrumentation and Electrical Engineering**
 - Specifications for all analyzers (pH, conductivity, ORP)
 - Specifications for all other instrumentation (temperature, flow)
 - Development of instrument loop drawings
 - PLC design and wiring
 - Selection of power supplies (feeder locations)
 - Conduit plans and wiring diagrams
 - System communications design (interface with DCS)
- **Preliminary Bill of Materials**



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