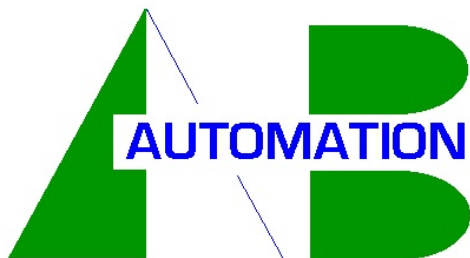


Project Profiles

Water & Waste Water Systems



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Municipal Well Water Control and Monitoring

Description:	In this project we specified and programmed two pump control PLCs at different locations. These controllers communicated via modems over phone lines. Eight different wells are controlled based on header pressure. Automatic chlorine injection was supplied for three of the wells. The system provides drinking water to a small central California town.
Hardware:	AEG Modicon Micro PLCs with Panelmate 1000 Operator Interface units were supplied at each location. A telephone dialer system was implemented to contact authorized personnel in the event of a system failure.
Operator Interface:	Conventional selector switches and pilot lights were used in addition to the Panelmate units. The well start/stop sequence can be easily changed using the Panelmate keyboard.
Engineering Activities:	Modem setup, PLC programming, and Panelmate programming were executed. Start Up assistance of the system was also provided.
System Documentation:	Complete Control Description, Operating Procedures, and Software documentation was provided.



Water Filtration System

Description: We programmed the Operator Interface System (OIS) for a Programmable Logic Controller (PLC) controlled water filtration system. The filter control utilized a sequential step algorithm. The filters had a complex backwash sequence. This system supplied water to several Northern California cities.

Hardware: A Modicon Panelmate Plus was used for the OIS. Several complicated PID loops are controlled by the system.

Engineering Activities: Programming and start-up assistance.

System Documentation: Software Documentation and Configuration Specifications.



Chlorine Dioxide Injection System

Description:	This system automatically meters Chlorine Dioxide into a fresh produce transfer flow. The system is programmed to never deliver dangerous amounts of the chemical to the process flow stream. ORP analyzers determine the system concentration and the operator is able to set the desired set point. The Chlorine Dioxide eliminates bacterial growth.
Hardware:	Allen Bradley PLC 5/30 utilizing Block I/O for both Digital and Analog I/O.
Operator Interface:	Allen Bradley PanelView 1200.
Engineering Activities:	Wiring Diagrams, PLC programming, Start Up Assistance, Operator Interface Programming and System Documentation.
System Documentation:	Control Description, Wiring Diagrams, and Software documentation for the PLC and the PanelView were provided.



Industrial Waste Water Treatment

Description: In this project we specified and engineered control system and instrumentation modifications for Industrial waste water processing at a large semi-conductor facility. We documented the previously installed instrumentation and produced a bid-package for system replacement. This system utilized treatment, biotreatment and filtration.

Hardware: Siemens/TI 545 Programable Controllers

Operator Interface: Intellution DMACs stations.

Engineering Activities: Piping and Instrument Diagrams (P&IDs), Instrument specifications (per ISA 5.20), Control System wiring diagrams, Schedule, and a Control System bid package were prepared.

System Documentation: Bid Package drawings and specifications were provided.



Waste Water Treatment for Disk Drive Manufacturer

Description:	This system monitored and controlled the Waste Water system for a small manufacturing complex. Heavy metals and other contaminants were removed from a waste water stream.
Hardware:	The system was controlled by a Mitsubishi PLC. Analog signals were used to control chemical injection rates.
Operator Interface:	A dedicated computer running WonderWare InTouch is used as an operator interface. Recording of flow rates and pH values is also accomplished.
Engineering Activities:	Control System Design, Programming, Documentation, and Start-Up.
System Documentation:	A Control Description and Software Documentation were supplied.

