

## **Applied Sciences Group, Inc. – Historian, Real-Time Information Portal and Recipe Management System**

### **Customer's Manufacturing Challenges & "PAINS"**

Applied Sciences Group (ASG) was contracted by a medical manufacturer that produces slides for medical diagnostics. The slides have a proprietary coating placed on a substrate film material. Processes at the facility include formulation (batch processing), coating (continuous web processing), slitting and chopping (packaging). The entire process must comply with 21 CFR Part 11 for any records it chooses to store electronically about products produced at the facility. This traceability is highly regulated. Records were stored electronically on disparate systems provided by the various equipment OEMs however this facility needed to comply with standard FDA regulations and Good Manufacturing Practices (cGMP).

### **Our Solution**

ASG was able to leverage a combination of "off-the-shelf", cutting edge software from GE Intelligent Platforms along with custom software application development to meet the challenges and requirements of the project. ASG was contracted to integrate a server-based system to support the needs of production, quality systems, and engineering personnel.

The system is comprised of a high-availability computing environment with three servers. One is dedicated to a 3,500 tag GE Proficy Historian, the second is an unlimited tag GE Proficy iFIX SCADA, and the third a Proficy Real-Time Information Portal Server.

ASG and our customer functioned on a joint, coordinated project team and implemented a progressive action plan to replace the disparate data collection systems that were the result of several different OEM installations, by translating the old historical files to a usable format. An example was in the coating area which was controlled by a sophisticated, but out-dated, DCS made by Westinghouse and installed in the late 1970's. The data historian used by this system utilized a format that is not compliant with contemporary data collection historians (such as the OPC-compliant GE Proficy Historian) or the regulation requirements for 21 CFR Part 11. As such, ASG was contracted to reverse engineer the WDPF historian files, migrate 5-years of data and provide a connection to the Proficy Historian server. It was imperative that 7 years of contiguous historical data be available to comply with the regulations of 21 CFR Part 11.

Additional action plans that have been implemented over the years by the joint project team include:

- ASG provided modifications to an existing SCADA, connection to the Proficy Historian, and a new LabView front end for high-speed data acquisition requirements on a slitter.
- A winder system was also upgraded to provide connection to the Proficy Historian.
- A coating area machine that utilized a VAX VMS based recipe management system was upgraded to include a solution built on Microsoft SQL Server and Visual C# GUI interface. Of particular importance was the client's desire to have the recipe management system look as similar to the older VAX system as possible to make the re-education of the floor personnel as seamless as possible.
- A Invensys' Wonderware node with its own internal proprietary historical format was converted to the GE Proficy Historian. The system in the formulation area communicates with 10 Allen-Bradley PLC's.
- ASG recently (Fall '09) completed upgrading the GE Proficy iFIX & Real-Time Information Portal Servers to take advantage of advanced new redundancy features of the latest version of the software. The GE Proficy iFIX SCADA server now consists of a primary and secondary server. Data is tightly synchronized between the two servers such that if the primary server has a failure, the secondary server will continue to run with no interruptions in the control or data collection process, providing a high degree of fault tolerance. In other words, critical systems continue to run and do not experience a loss of data if the primary server fails. Additionally, this system now communicates to an "off-the-shelf" hardware/software solution from Emerson Process Management (Ovation Distributed Control System) to replace the obsolescent Westinghouse Distributed Control hardware and software.

*Key Technologies:*

- o GE Proficy (iFIX, Historian, Real Time Information Portal)
- o Allen-Bradley PLCs (ControlLogix, MicroLogix, PLC5)
- o Siemens PLC's (S7 300)
- o National Instruments (Labview)

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