



**ENTERPRISE
AUTOMATION**
A TETRA TECH COMPANY

PROJECT PROFILE

PHARMACEUTICAL PRODUCTION UPGRADE

SIEGFRIED

Customer Background

Siegfried is a global company that provides comprehensive services in the pharmaceutical industry spanning product development, registration, manufacturing, packaging, and logistics.

Established in 2002, Siegfried Irvine specializes in the sterile manufacturing of innovative and challenging pharmaceuticals, ophthalmic solutions, and drug delivery devices. The facility is equipped for cGMP sterile drug product filling and finishing of biologics, suspensions, emulsions, ointments, and gels. Siegfried Irvine approached Enterprise Automation in 2019 to audit and upgrade their control systems and EA has supported multiple projects since.

Project Background

The Siegfried Irvine facility produces various pharmaceuticals and houses equipment and services to support this purpose. The CIP SIP system is one designed specifically to clean and sterilize equipment. The initial project scope was to audit their PLCs and determine which to replace. Several PLCs were problematic and disconnected frequently enough to create unanticipated downtime.

Elements of Siegfried's SCADA platform were at risk of becoming obsolete, out of support, or no longer available for software and security updates. When that situation arises, facilities must update their SCADA to prevent significant usability and security risks. A regularly maintained SCADA platform enables the compliant and operational use of the facility for production. To that end, Siegfried selected to update their SCADA system to AVEVA System Platform 2020 which also includes high performance graphics with OMI visualization engine.

After we performed the audit, the project's scope evolved to include the replacement of all end-of-life PLCs and working alongside Siegfried's corporate IT group to improve security via platform upgrades.

Project Manager



**Matt
Avila**

Project Technical Lead



**Alex
Coker**

Key Insights:

- Updated SCADA system with 34 new screens, replaced PLC panels, and installed 10 new PLC panels.
- Segmented network with 20+ virtual machines

Key Technologies:

- AVEVA System Platform 2020 with OMI
- Allen Bradley CompactLogix PLC
- Allen Bradley MicroLogix PLC
- TopView Alarm Management Server

EA Solutions

When we create control systems to accommodate new hardware, the reuse potential of all content (such as graphics or logic) throughout a facility remains top of mind. Our work with Siegfried involved significant upgrades to its SCADA and PLC systems and procuring all hardware and software necessary. These upgrades would prevent stability issues and avoid obsolescence moving forward, which ensures production and QC can operate without unexpected interruptions. Our goal was to provide Siegfried a long-term platform foundation that would make add-ons or upgrades easier in the future.

After auditing their SCADA system, we upgraded Siegfried's system to System Platform 2020 with OMI and created 34 new screens modeled on their previous system. This resulted in a standardized, high-performance graphical interface that did not require extensive additional training for users. Virtualization reduces time and costs spent on the maintenance of hardware while utilizing the power and capacity of physical servers more efficiently. To that end, we segregated networks by creating a new virtualized environment with more than 20 VMs to better segregate networks and improved security by implementing redundancy.

Siegfried leveraged this opportunity to implement highly valuable additional features such as a dedicated test platform, automated reporting, and automated backup for recovery, all of which enable them to reap more value from the system moving forward. All high-quality production systems benefit from utilizing test platforms that enable facilities to integrate new elements without risk. All potential changes should first be developed and tested on this platform, ensuring they are validated and verified for safety before being deployed.

Alongside the SCADA system upgrade, Siegfried opted to update any outdated or non-standardized PLCs. To generate a more cohesive, future-proof system for Siegfried, we installed ten Opto22 PLC panels with new Allen Bradley CompactLogix PLC panels. Modernizing PLC hardware and improving panel conditions provided additional functionality and was accompanied by clear documentation.

Because the legacy alarm software was no longer active or supported, we created a new alarm database and transferred functionality to TopView alarm management software. EA also configured redundant TopView alarm servers.

The upgrades yielded several positive results, including improved visibility of process issues and alarm callouts as well as a well-documented system. Due to the increased visibility within the newly upgraded system, the Siegfried team identified several chronic issues that had previously gone under the radar and initiated the planning of mitigation projects to resolve them. The upgraded PLCs and SCADA system were validated by a joint team of Siegfried and EA engineers in a limited window of facility downtime. The new system allows for increased control over individual processes, enabling Siegfried to tactically isolate and resolve issues while avoiding system-wide downtime.

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