The WDPF control system is approaching the end of its product life. Replacement options include migration to Ovation retaining the QLine I/O, migration to Ovation replacing QLine with RLine, or a total system retrofit to another DCS technology, such as the Siemens T3000. This newsletter focuses specifically on managing a retrofit from WDPF to Ovation.

**Project Schedule**: Updating plant drawings such as Electrical Schematics, P&IDs, SAMA logic, and I/O termination lists to AS-BUILT is a proactive preparatory step. A total plant AS-BUILT drawing review takes 6 to 9 months to complete. Emerson typically requires a purchase order 9 months prior to equipment installation, so, in order for the review to be completed prior to project kick-off, it needs to be underway 18 months prior to the equipment installation date.

**AS-BUILT Logic Review**: AS-BUILT SAMA logic drawings with control settings included and I/O databases with correct termination info are extremely useful:

1. The Ovation control builder logic sheets are very similar to the SAMA format. If requested, Emerson will organize the Ovation sheet layout to closely resemble the SAMA drawings.
2. Ovation version 3.x features the ability to “publish” sheets in Adobe format complete with control settings, tracking, and dynamic page connections. Prior to factory acceptance testing (FAT), Emerson will send out logic sheets, graphics, and the point database for review. A line-by-line comparison of the Ovation logic implementation vs. the AS-BUILT logic drawings and a comprehensive database review vs. the AS-BUILT term lists will yield a discrepancy list of implementation errors to be corrected at the FAT.
3. An accurate I/O termination list facilitates Ovation I/O module selection, database implementation, field wiring re-termination (if required), and I/O checkout.

**Optimization...or not**: Early in the project (i.e., at the kick-off meeting) the decision should be made either to duplicate the currently running logic AS IS or to optimize the control system. Guidelines on risk mitigation and management of change should be established and clearly communicated to team members and Emerson project engineers.

**System Integration**: For a typical combined-cycle retrofit project, different Emerson project engineers will implement the CT, ST, and BOP logic. Graphics, termination drawings, and serial interfaces may be implemented by specialists in those areas. Onsite system administration and installation will be performed by a field engineer.
With so many engineers involved, it's imperative that someone take responsibility for integration of the entire system in order to avoid disconnects such as wrong pointnames, graphic inconsistencies, etc.

**Issue Tracking:** Bi-monthly conference calls between Emerson and the project team contribute to a good working relationship and a running action item list helps track issues and their resolution throughout the course of the project.

**Operator Input:** Soliciting and organizing operator recommendations on control room layout, alarm management, process graphics, etc., is key to winning operator buy-in. Extraction of an alarm list from the point database allows operators to review alarm priorities, setpoints, and English descriptions to improve alarm management. Feedback on process graphic corrections can be organized and communicated to Emerson prior to the software FAT.

**Factory Acceptance Test:** A plant-specific simulator model will be developed by Emerson to facilitate logic debugging at the FAT. The “loop-back stimulator” reads outputs from the control system, simulates the process response, and writes inputs to the control system. Be sure to request that Emerson include all analog & digital inputs used in control in the simulation. Also, a detailed functional logic checkout procedure will maximize simulation time during the FAT by facilitating division of labor and providing for documentation of each check.

**QLine I/O Replacement:** QLine is no longer a current product. While most QLine cards are still available, critical specialty cards such as QSR (Servo Driver), QVP (Valve Positioner), and QLC (Serial Link) may be hard to obtain. Replacement of QLine with RLine should be considered. Field terminations remain undisturbed when QLine is replaced with RLine I/O.

**Solaris vs. Windows:** Ovation 3.x runs under Windows ONLY.

**Migration Tool vs. Redraw:** There is no Emerson “Migration Tool” for the current version of Ovation. The logic must be redrawn.

**Installation & Start-up:** Since field terminations remain undisturbed, a complete I/O checkout from the field is not required. Inputs can be checked relatively quickly from the halfshell terminations by I&C technicians. Control system outputs will need to be verified by operations personnel as tag-outs are released.

**Project Management:** It is hoped that this newsletter will be beneficial to those planning or managing DCS retrofits in the near future. However, some plants busy with day to day O&M challenges may find outsourcing to an AE firm or a DCS consultant an attractive option.

**About us...**

Process Control Solutions specializes in control system engineering, project management, and commissioning support for Ovation system retrofits. We supply WDPF/Ovation software configuration, optimization, training, and perform logic reviews to insure SAMA drawings are “AS- BUILT” for Combined Cycle and Fossil Steam Power Plants.

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