

Management Solution

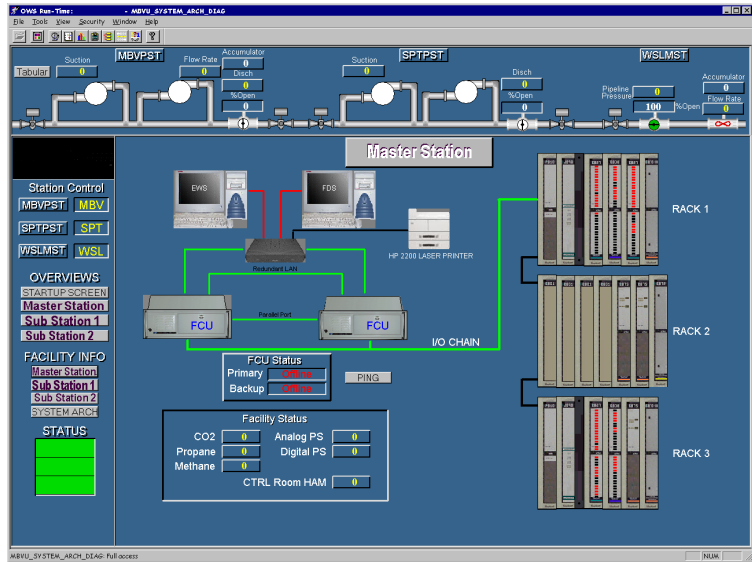
Fuel Distribution

Major Pipeline Company Saves Time and Money Using CSI's UCOS SCADA System

Each year, one of America's largest pipeline companies* transports millions of barrels of refined petroleum products through more than 10,000 miles of pipeline, spider-webbed from Los Angeles, California to New York City Harbor.

This company wanted to replace its aging VMS-based Teledyne Vector supervisory control and data acquisition systems (SCADA) on two of its pipelines which are both managed and controlled from its headquarters.

As the company investigated various SCADA systems and vendors who could achieve this goal, one name continually rose to the top as the best choice for customer value: Control Systems International, Inc. (CSI) and its UCOS® SCADA system for pipelines.



Operator Workstation screens display real-time operations.

When the pipeline company contracted with CSI to automate its pipeline SCADA systems, it hired an engineering firm that had more than three decades of experience in large, complex, and detail-oriented projects. The pipeline company wanted an engineering firm it could trust to help them make crucial decisions in the design process and everything from defining stringent system specifications to procuring cost-effective hardware and equipment.

Phase I: Design, Develop, and Implement

CSI worked closely with the pipeline company to create a detailed design document, including functional specifications, implementation standards for HMI graphics, and tag definitions. CSI then used patented features in UCOS SCADA to embed those specifications into a pipeline-specific library of object-oriented device templates. This device template design process ensured consistent implementation of the specifications throughout the projects. It also greatly reduced system development time and saved the pipeline company thousands of man-hours in system implementation time.



Control Systems International®
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* For competitive and security reasons the company described in this document chooses not to be identified.

Phase I began with a 100-mile-long pipeline transporting refined product. CSI Engineers installed UCOS at three stations along the pipeline.

During phase I of the project, CSI engineers replaced all of the Modicon 984 processors with the more versatile UCOS Intel-based Field Control Units (FCU). Instead of using expensive and proprietary PLCs to control I/O, UCOS SCADA uses FCUs which can control several different brands of I/O at the same time. The FCUs were configured with the existing Modicon 800 series I/O so the company suffered no downtime due to rewiring when it switched over to the new UCOS SCADA system.

CSI engineers also installed UCOS SCADA at the pipeline's master station and two backup master stations each located in a different state.

Because of the UCOS SCADA system's report-by-exception distributed database and its dynamic security features, the pipeline's personnel could now control the pipeline from any of its master stations or any of its three in-line stations. This was the first time in the history of the pipeline that full SCADA control could be switched to any location along the pipeline.

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Phase II: Expanding the Network

Phase II expanded UCOS SCADA technology from the 100-mile-long pipeline to the entire regional pipeline which branches out more than 1,600 miles from Southern Kansas to Northern Illinois.

While all pipeline monitoring and control originated from the master station, with UCOS SCADA it became possible for real-time monitoring and control to be achieved from any station on either pipeline via TCP/IP over the pipeline's wide area network (WAN).

Phase II also completed the retirement of the aging Vector master stations and began the standardization of UCOS SCADA across the 47 stations on the regional pipeline.

Phase III: Total Connectivity

During phase III, CSI engineers expanded the UCOS SCADA WAN to include three more regions.

By the completion of phase III, CSI engineers using the UCOS SCADA system had automated 50 stations on both pipelines all the way down to the field level I/O.

With CSI's experience in designing and implementing large and complex SCADA systems, the pipeline company quickly realized added value. The patented design features of UCOS SCADA allowed CSI to design and implement its system before most other systems of this size could be designed and configured.

UCOS operates on Windows 2000. It's an open system that is pre-configured and pre-tested for most off-the-shelf hardware. This benefit greatly reduced equipment costs for the pipeline company, since it was able to reuse existing Modicon I/O and other operational hardware, such as Daniel 2500 Flow Computers.

As this major pipeline company continues to expand its enterprise with UCOS SCADA, the hardest part of system development will be left far in the past. By the completion of the project, UCOS SCADA will be monitoring and controlling the entire pipeline system with reliability and integrity. CSI and UCOS give this pipeline company a highly competitive edge which it realizes as true and tangible value.



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