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Technology

Operating Strategies

American Soda Unlocks Cost Savings

Using digital automation architecture, advanced control systems and new instrumentation, American Soda saved money on both installation and startup costs at the Piceance nahcolite mine in northwestern Colorado. Since production began in 2000, the company has seen further savings by using asset management software that enables technicians to read field instruments in a way never before possible.

The information obtained by the software is crucial to American Soda; since the well sites operate under federal mining rights, accurate documentation is essential for compliance with government rules and environmental regulations. The software provides validity by automatically recording all maintenance activities on field devices connected to the control system.

American Soda chose the system, which includes the Foundation fieldbus technology, the PlantWeb digital architecture, and the DeltaV automation system and is made by Emerson Process Management, to cut down on the wiring needed to connect the widely scattered production wells at Piceance Creek.

Piceance Creek recovers 1.73 million tons of nahcolite/year and processes that material into high-purity bicarbonate of soda and soda ash for markets worldwide. The control system at Piceance Creek manages two gas-fired boilers and 26 deep wells, where hot water is forced underground to dissolve the raw material. The resulting slurry is pumped to the surface, where initial processing removes impurities. It is then transported 45 miles along a pipeline to a finishing plant near Parachute.

The software can access information without sytem interference. Photo: Courtesy of American Soda.

The PlantWeb design uses a fiber optic cable, laid out in a circular pattern around the operation, with three strategically placed controllers attached as nodes. Cable segments run relatively short distances from each of these controllers to the 26 wells. Each well has as many as 14 instruments taking measurements. The layout is hooked up to the DeltaV system host, boiler instrumentation and digital valve positioners, and provides a more flexible approach to the control system.

The asset management software also can access information from the field devices without interfering with the control systems inputs and outputs. The information can be processed and organized in a database that can be used for instrument calibration, maintenance and configuring new field devices. American Soda now regularly uses the asset management system to check conditions of field instruments.

The software also has a documentation feature that allows regulators to see proof of calibration, percent error of any instrument, and any scheduled maintenance.