



HURST TECHNOLOGIES – FOSSIL

Hurst engineers can help CC facilities take advantage of the “purge credit.”

In order to startup and shutdown quicker, combined cycle facilities often have to undergo modifications that range from minor to significant. One consideration is the National Fire Protection Association (NFPA) sanctioned “purge credit” to shorten startup periods after shutdowns. Modifications required and cost/benefit analysis of purge credit mods generated lively discussion at the recent HRSU Users Group Conference in Tampa, FL, where Hurst has had a presence for several years.

Among other things, the purge credit can cut 10-30 minutes off startup times, which can translate into big bucks in power markets that reward ramping and cycling, and where lots of intermittent and solar are connected to the grid. The engineers at Hurst Technologies can help you take advantage of the purge credit.

In simple terms, the purge credit, a modification to NFPA 85, is based on two ideas¹. First, there is sufficient post-purge air flow during a normal shutdown of the gas turbine to remove any residual combustible material from the gas turbine and HRSG flow volumes. Second, gas with residual combustible material is not able to seep back into the ductwork while the unit is off-line.

NFPA 85 allows you to avoid a redundant separate gas purge prior to gas turbine light off if (1) sealing valves and components are added to the fuel system, and (2) instrumentation is added, together with new procedures, to monitor the integrity of the isolation. For new units, the owner/operator will likely be given the option for a three-valve assembly (with ancillary components) instead of the more traditional double block valve and vent piping arrangement.

Keep in mind there are several different configurations for the valving depending on whether your facility burns natural gas, fuel oil, or both. Three of them are:

- Triple block and vent valves with continuous monitoring of valve position and pressures, along with validation of leak tightness using a valve-proving system
- Triple block and vent valves with pressurized pipe sections (air or inert gas) and monitoring of valve position and pipe pressures
- Pressurized (air or inert gas) triple block and double drain valves, and continuous monitoring of valve position and pipe pressures (liquid fuel only)

Hurst engineers offer important services for purge credit modifications, including independent system evaluation to ensure that the design meets NFPA 85 requirements, third-party assessment for adapting the fuel system for purge credit, and review of modifications to the burner management system (BMS) to make sure it meets NFPA 85. Contact Paul Cannon paulc@hursttech.com or dpcannon@gmail.com or Austin Pool at austinp@hursttech.com. Or call Paul directly at 713-206-5037, or the Hurst main office at 979-849-5068

¹“Startup Purge Credit Benefits Combined Cycle Operations,” *Power Magazine*, June 2012, p. 70