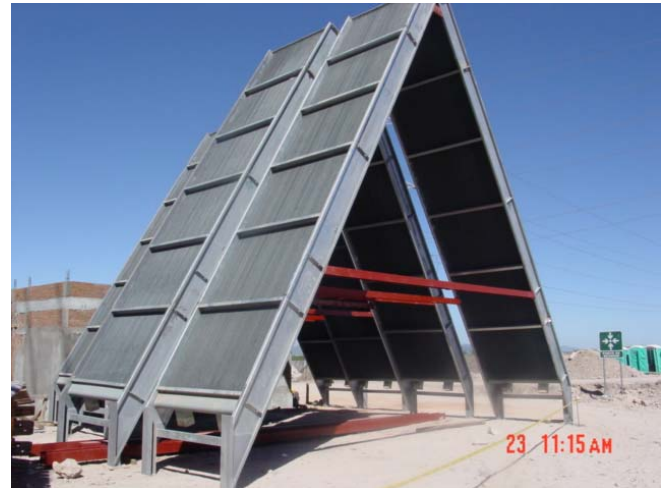


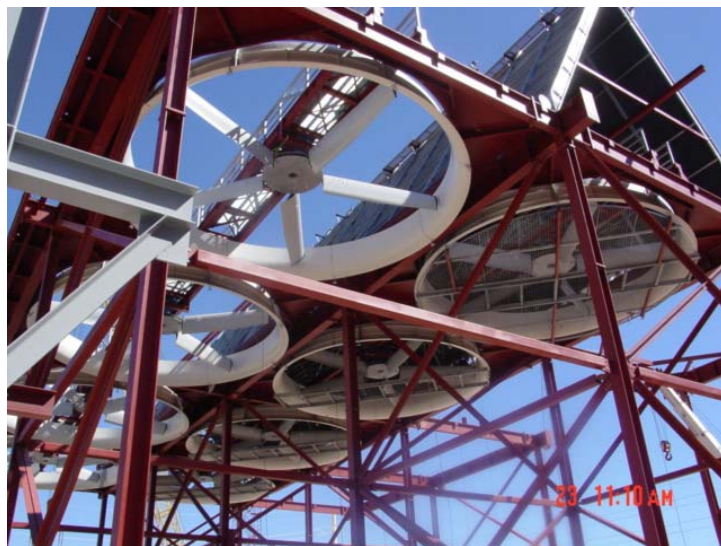
SigmaCommissioning™

In the last several years, the use of Air Cooled Condensers (ACC) has become more prevalent. The units are particularly attractive for new power plant installations where the supply of water to the plant is limited and where there are restrictions on the disposal of blowdown water from both the boilers and cooling towers.

ACC equipped plants pose some unique challenges during the plant start-up. Specifically, due to the lower heat transfer coefficients typical for air cooled condensing surfaces compared to a water cooled condenser, the ACC must have considerably more heat transfer surface area compared to a water cooled condenser. Furthermore, an ACC is constructed of mild steel rather than titanium or brass, and the mild steel represents a significant source of contamination that must be flushed from the system during initial operations.



BES&T is in the process of patenting the SigmaCommissioning™ process, which allows for a traditional steam blow, exhausting to the ACC's, and cleaning these vital components at the same time. Some of the benefits of this process include:



- Reduced fuel usage/cost during steam blow - the quality of condensate that returns from the ACC improves to the extent that most can be recycled to the HRSG's w/minimal treatment
- Reduced fuel cost during plant performance run - formulated chemistry is added to exhaust steam to enhance the removal of silica from the ACC metal surfaces avoiding extended operation in bypass mode
- Reduced schedule - less time for performance, restoration and clean up of chemistry can reduce schedule by 10-14 days

- Reduced temporary water cost - little if any temporary treatment equipment from vendors is required
- Reduced GT starts – can be completed with as few as three gas turbine starts.

SigmaCommissioning™ is available exclusively through Boyle Energy Services and Technology, Inc.