

**Iowa State University
Steam Turbine Generator
Ames, Iowa**



Farris Engineering provided structural, mechanical, electrical and plumbing engineering services for the installation of a new 14 Mw steam turbine generator at the main heat plant on campus. Services provided included equipment pre-purchase packages for the turbine generator, valves, pressure reducing stations including piping modifications within the power plant to allow for phased construction and installation of new power equipment. Three dimensional power piping drawings depicted pipe modifications, thermal pipe analysis, and flow analyses were also provided to size critical support systems for the project.

Significant characteristics of the project included:

- Investigation of plant site to aid in determining the location best suited for the facility. Investigation included evaluation of environmental hazards, existing piping configurations, systems supported, facility and operational constraints.
- Phasing critical plant operations and downtime periods with construction schedules and operational needs. Replacement of high steam pressure reducing stations, removal of primary piping elements without interruption of service.
- Auxiliary equipment include condensate and condenser cooling pumping systems, chemical feed systems, system controls, staged steam pressure reduction systems, and supporting electrical power supply systems.
- Electrical generation equipment capable of providing primary power to support the campus.
- Instrumentation and controls necessary for operation and monitoring of the electrical plant generation, including the ability of the control systems to communicate with the plant energy and operational management system.
- Replacement of existing steam and condensate headers including isolation valves, metering, pressure reducing stations, and distribution pipe lines to the existing campus by sectionalizing steam lines leaving the plant via walk-thru concrete utility tunnel system.

Project Cost

\$2,159,200

Completion Date

2005

Client Reference

Iowa State University