CASE STUDY

INDUSTRY: **EDUCATION**

CUSTOMER: Western Michigan University

LOCATION: Kalamazoo, MI, USA

BACKGROUND: Armstrong International designed, built, operated, and maintained a new boilerhouse providing steam and chilled water for WMU. Detailed design was assisted by Cummins & Barnard of Ann Arbor, Michigan.

SCOPE OF WORK: Armstrong built a 10,000 sq/ft (929 sq/m) free-standing building, with two 400 hp water tube boilers, one 350 hp fire tube boiler, all with dual fuel capabilities. Armstrong also installed three 700 ton (635,029 kg) variable speed chillers with primary and secondary pumping systems and required distribution piping. The steam production is 40,000 lbs/hr (18,143 kg/hr) peak and 2,100 tons (190,5088 kg) of chilled water. Armstrong also designed and installed 138 kv electric sub-station and provided energy optimization software to allow for remote monitoring and supervisory control of boilerhouse.

Each station accepts several wells into a header system after which vessels are used to separate the oil, water and natural gas into separate streams. The natural gas leaving the stations flows into gas collection lines then to the gas processing plant as shown here in the photo below.

BENEFITS: Armstrong has operated and maintained the boilerhouse since the boilers were installed. The boilerhouse has been designed to be completely remote monitored and controlled via Armstrong's web-based energy optimization system.

Total value of the project was $8 million and financed by WMU. The project was completed on schedule.

Began September of 2001, with a multi-year term for service and support beginning July, 2003.

Armstrong developed the system to ensure that Central Power Plant personnel can monitor and control remotely boiler/chiller operations. Additionally, the system will pinpoint areas of inefficiency and notify of a change in fuel purchasing strategies.