Letting off some steam

A steam trap survey can help locate steam leaks and reduce costs.

Ultraprobe 2000, Duke University Medical Center, Durham. N.C.

Ultrasonics. Duke University Medical Center selected a consultant from Enercheck Systems to conduct a steam trap survey using the Ultraprobe 2000.

Steam can escape through external or internal leaks in fittings, valves, traps or particular control devices. Blowing or leaking traps may cause a high back pressure in condensate piping. Failed control valves may cause excessive condensate load. When control valves are oversized, they are forced to work in close tolerance to the disc and seat.

Fluids moving from the high-pressure side of a valve to the lower pressure side produce turbulence. This generates ultra-sound, which an ultrasonic detector translates into an audible range for the human ear. The ultrasounds are heard through headphones and viewed as intensity increments on the handheld instrument's meter. High frequency tuning allows the user to adjust for differences in fluid viscosity and reduces interference from stray pipe noises.

Every aspect of the steam system throughout each building of the research facility was inspected comprehensively. At each site, the consultant found where the steam line entered the building and traced the system. The consultant checked to see if pressure was controlled correctly and whether relief valves were blowing steam through the roof. In the end, 2,100 steam traps were found.

The ultrasonics-based steam and maintenance program resulted in savings worth $250,799 the first year it was used. This translates into 37 million pounds of steam saved when compared to the previous year.