# Automated Blowdown Cost Justification

**TT-014-0790**

A common objection to the purchase of an automatic boiler blowdown system is the cost to purchase and install a system. However, an analysis of the operation of the boiler system in question may show that an automated blowdown controller will provide a quick payback.

Consider, for example, a boiler system with the following operating conditions:

| | |
|---|---|
| Operating pressure | 100 psig |
| Steam production | 10,000 lb/hr for 18 hours/day<br>180,000 lb/day |
| Average cycles of concentration, based on feedwater | 10* |
| Total blowdown | 20,000 lb/day |
| Surface blowdown control | manual |

**allowable cycles of concentration are 18 based on ASME guidelines, but because surface blowdown is constant and steam loads vary, the average must be maintained lower to prevent overcycling and scale formation.*

An automated blowdown control system, by adjusting surface blowdown rates as steam loads vary, would provide operation much closer to maximum allowable cycles of concentration. If, for example, the above system operated at an average of 15 cycles of concentration, total blowdown would be 12,860 lb/day, a reduction of 7140 lb/day. This would save approximately 2,700,000 BTU/day in blowdown losses, or about 2.7 million cubic feet (Mcf) of natural gas. At $7.50/Mcf, the savings is $20.25/day.

Depending on the choice of optional features, the installed cost of an automated blowdown controller ranges from approximately $1500 to $4000. In the case illustrated above, the payback period would range from 74 to 197 days, based on fuel savings alone. When savings in water and sewerage costs are figured in, the payback period is reduced to 62-165 days depending on the blowdown controller chosen. After the initial investment is recouped, the savings would continue to accrue at the rate of almost $8500/year, based on 350 days/year operation.