The non-invasive Wireless Steam Trap Monitor was a successful tool in implementing a performance-based maintenance strategy. Installation of the solution did not disrupt plant operations. The overall results showed a payback period of less than one year.

Chris Stubbs  
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Genentech

OVERVIEW:  
WIRELESS STEAM TRAP MONITOR (WSTM)  
The Need for Continuous Monitoring
The typical steam plant loses 20% of its energy through failed steam traps. Manual inspections mean ongoing expense and lost steam until next audit.

- 15-20% of steam traps fail every year even in well maintained steam plants and up to 50% are failed in facilities without regular maintenance programs.
- Annual inspections identify failed traps after six months of steam has been lost on average.
- More frequent audits lose less steam but incur significant ongoing inspection costs.

The WSTM provides continuous monitoring of steam trap health to enable immediate response when failures occur.

- Non-invasive, clamps on in minutes.
- No shutdown of process required.
- Simple user interface and failure analysis.
- Proven industry method for steam trap failure detection.
- Alarms sent upon failure.
- Functional in very hostile environments, e.g. 25-foot pits and 500º F.

Many WSTM projects pay back in less than one year. Even low-pressure, low-cost steam systems can achieve very good returns.

- Genentech installed 56 WSTMs at their South San Francisco campus to monitor steam traps with 1/8” and 1/4” orifices and 100 PSI steam.
- $42,000 total project cost.
- 14 failed steam traps identified in the first year.
- $53,000 and 3.5 million pounds of steam saved per year.
- 10-month payback period.

WSTM Payback with $15 per 1,000 Pounds Steam*

- Payback period in one year or less is common.
- Model does not account for avoided pipe damage and other operational benefits.
- Key variables of payback calculation include: steam cost, pressure, orifice size, failure rate, uptime and existing inspection costs.

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3. Assumes 0.032” orifice and 100PSI

*Assumes 15% annual failure rate for traps, 365 day operations, once per year inspection program.