

“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**

Senior Director, Corporate Facilities Services  
Genentech

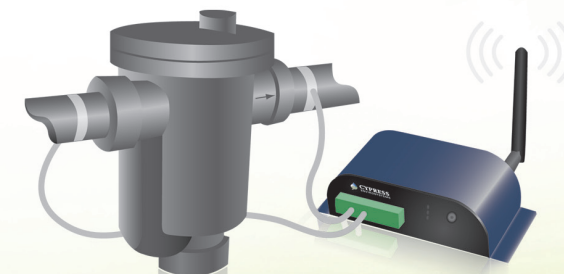


## OVERVIEW:

WIRELESS STEAM TRAP MONITOR (WSTM)  
The Need for Continuous Monitoring

### OUR FAMILY OF PRODUCTS

A white, rectangular wall-mounted thermostat with a digital display and control buttons.	A blue and silver electronic device with a digital display and a gauge, connected to a pipe.	A grey, cylindrical device with a digital display and a wireless antenna, connected to a pipe.
WIRELESS PNEUMATIC THERMOSTAT (WPT)	WIRELESS GAUGE READER (WGR - 100)	WIRELESS STEAM TRAP MONITOR (WSTM - 100)
A white, rectangular wall-mounted unit with multiple green indicator lights.	A blue electronic device with a digital display and a wireless antenna.	A small, black rectangular device with a digital display and a wireless antenna.
WIRELESS FREEZER MONITOR (WFM - 100)	WIRELESS TRANSDUCER READER (WTR - 100)	WIRELESS BATTERY MONITOR (WBM - 100)



# Detect Steam Trap Failures

before losing steam and money

### HEADQUARTERS

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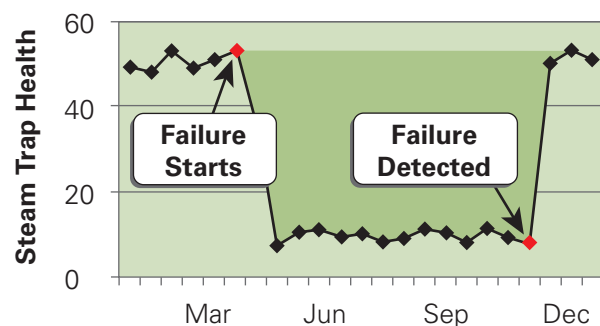
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# SITUATION:

The typical steam plant loses 20%<sup>1</sup> of its energy through failed steam traps. Manual inspections mean ongoing expense and lost steam until next audit.

- 15-20%<sup>1</sup> of steam traps fail every year even in well maintained steam plants and up to 50%<sup>2</sup> 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

**Six Month Delay with Annual Inspection**

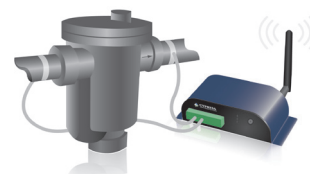


- Steam leaks from failed trap for six months before detection during annual inspection
- 315,000 pounds of steam lost<sup>3</sup>
- \$4,725 lost at \$15 per 1,000 pounds steam

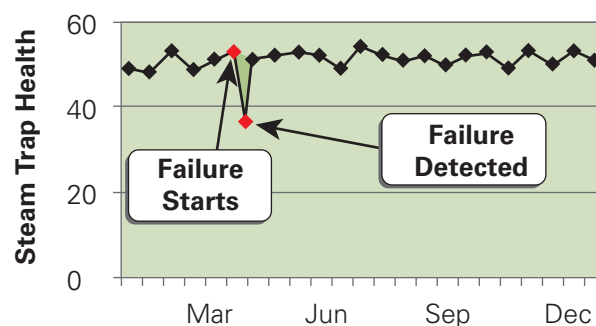
# SOLUTION:

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 500° F



**Immediate Response with WSTM**



- Save energy costs by identifying steam trap failures when they occur
- Eliminate manual steam trap inspections
- Prevent pipe damage that destabilizes steam distribution systems
- Improve safety characteristics of steam network

# RESULT:

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\***

Years Payback		Orifice Diameter		
		1/8"	1/4"	3/8"
Steam Pressure PSI gauge	25	5.1	1.3	0.6
	50	3.1	0.8	0.3
	100	1.8	0.4	0.2

- 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

1. [http://www1.eere.energy.gov/femp/news/news\\_detail.html?news\\_id=8310](http://www1.eere.energy.gov/femp/news/news_detail.html?news_id=8310)  
 2. [http://www1.eere.energy.gov/femp/pdfs/om\\_combustion.pdf](http://www1.eere.energy.gov/femp/pdfs/om_combustion.pdf)  
 3. Assumes 5/32" orifice and 100PSI

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