Steam System Optimization

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**Efficient Steam System Piping:**
- Proper Piping Practices – Design principles
- Trap Technology
- The importance of regular maintenance

**Continuous Steam Trap Monitoring:**
- Tool for monitoring steam traps
- Components – Design principles
- Benefits

**Steam System Data Management:**
- Web-based platform
- Reporting capability
- Benefits
Why Are Steam Traps Important?

- Steam losses cost **money**!
- Steam traps impact the entire steam system!
- A good steam trap will have a long life and provide efficient operation
Cost of a Failed Steam Trap

*Steam cost assumed at $10.00/1,000 lbs
Steam loss calculations per Armstrong’s formula, approved by the United Nations Technical Committee
**Trap replacement cost estimated at 2 labor hours using 2 maintenance or contractor personnel
What Makes A Steam System Efficient?

- Proper sizing and selection
- Proper piping
- Proper maintenance
- Proper management
Proper Sizing and Selection

- Sizing Software
- Trap Technology
Example of Trap Technology

TVS-811
Cost Effective Steam Trap and Valve Installations

• Safer for workers
• Less installation time
• Less maintenance time
• Same end to end dimension
Proper Piping

THEY DID WHAT!
Discharging up hill!
Installed sideways!
Flowing up hill?

MODULATING CONTROL VALVE

6.16.2004
What Makes A Steam System Efficient?

- Proper sizing and selection
- Proper piping
- Proper maintenance
- Proper management
The Importance of Steam System Management

A study performed by the Alliance to Save Energy found that 12.3% of fuel consumption in Industry was avoidable simply by controlling losses within the steam system.* Article: Cash Flow of Industrial Steam Efficiency, Christopher Russell, Alliance to Save Energy

Fuel Cost are still rising!

Less down time, Reduced maintenance time, positive affects on ROI
What is the cost of undetected steam trap failure?

- Energy Losses!
- Pressurized return lines
- Failure to auxiliary equipment such as PRV’s, electric condensate pumps, and control valves
- Unexpected down time
- Emergency labor requirements
Why Regular Maintenance Is Important

Breakeven Analysis of a Blow-Thru Steam Trap

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Typical Steam Trap Program

Issues of Today

- Facilities struggle to maintain focus on steam trap management because of other maintenance priorities.
- A yearly steam trap survey only provides adequate steam savings. A trap tested as good today can fail tomorrow.
- Tracking steam savings, and generating work orders in terms of payback is challenging using existing trap evaluation methods.
How Can Steam Systems be Managed?

- Software is available to monitor, measure, and manage steam trap data.
- Software specifically designed for use at all facility levels.
- Comprehensive reporting capabilities, such as benchmarking and trending.
- Emissions reporting.
Introducing
SteamEye®

24/7 TRAP
MONITORING
What about 24/7 steam trap monitoring?

- Radio Frequency, wireless steam trap monitoring system
- Monitors Traps 24/7, without labor requirements
- Checks for blow-thru, and cold steam traps
RF systems are available for low, medium and high pressure.
How Important Is Labor Fee Steam Trap Monitoring?

- Increased steam system efficiency
- Increased control over steam equipment
- Reductions in maintenance costs
- Improved profit potential
- Increased personnel safety
Components of a Radio Frequency System

- **RF transmitters**
- **Repeaters** - where needed
- **Receiver Assembly**
- Provides seamless link between the monitoring system and the data management platform
- Allows users to access from any network computer
How To Achieve Best Practice Steam System Optimization

24/7 Wireless Labor Free Monitoring  Facility Wide Steam Trap Data Management

Instant notification of steam trap failure and a sustained (24/7) monitoring process.

Company wide awareness and measurement of steam trap performance for ROI decision making.
How to begin
Steam System Optimization

- Be Realistic!
- Begin with a survey
- Create a program that provides **awareness**, **action**, and **accountability**