



## TEAM UP FOR ENERGY SAVINGS

# Steam and Condensate Piping Systems

Saving the environment and saving money can be as easy as fixing a leaky steam pipe fitting. That means you're on the front line for energy-saving opportunities. Team up with co-workers to spot ways to reduce the energy your steam and condensate systems use – it's good for the environment and good for your bottom line.

### Full steam ahead for energy savings

Check out your steam and condensate piping systems. Valuable energy is lost through steam leaks, faulty steam traps and poorly insulated pipes. To conserve energy and cut costs, consider three main areas:

#### 1. Housekeeping

- › Set up a steam trap maintenance program, including procedures.
- › Regularly inspect and maintain steam traps.
- › Fix steam and condensate leaks.
- › Ensure good steam quality by maintaining chemical water treatment.
- › Repair damaged pipe insulation.
- › Shut down equipment when not needed.
- › Shut down steam and condensate branch systems when not needed.

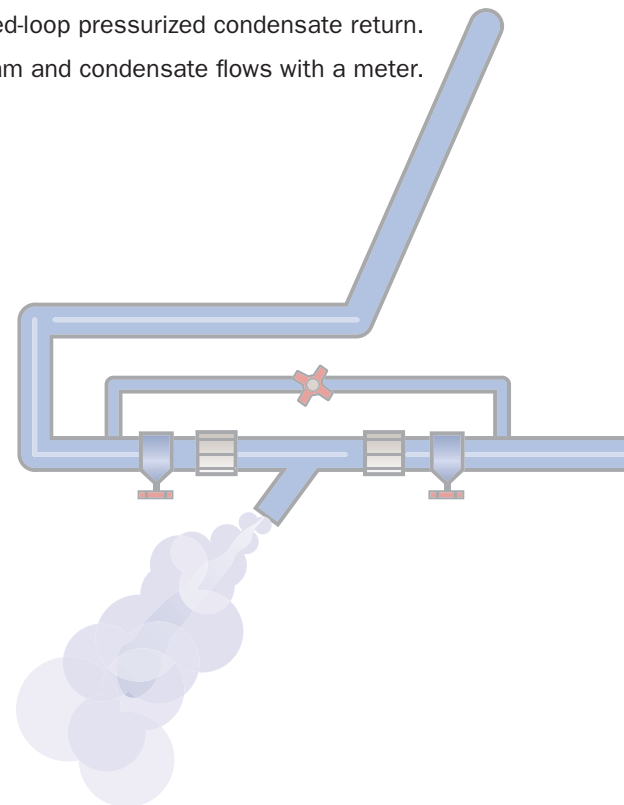
#### 2. Low-cost opportunities

- › Overhaul pressure-reducing stations. Reduce steam pressure where possible.
- › Insulate pipes, flanges, fittings and equipment. A three-metre length of uninsulated 10-centimetre steam pipe, for example, will cost more than twice as much in steam per year than it would to insulate.
- › Remove redundant steam and condensate piping.

- › Re-pipe systems or move equipment to shorten pipe lengths to minimize heat loss and steam leaks.
- › Repair, replace or add air vents.
- › Optimize the location of condensate conductivity sensors.

#### 3. Retrofits

- › Upgrade insulation.
- › Eliminate or minimize steam use where possible.
- › Replace old steam traps or ones that are the wrong size or type.
- › Optimize pipe sizes. Oversized pipes lead to higher surface heat loss, while undersized pipes need higher pressure and extra pumping energy and cause more leaks.
- › Depressurize condensate.
- › Recover heat from condensate.
- › Install a closed-loop pressurized condensate return.
- › Measure steam and condensate flows with a meter.



## Evaluate your steam and condensate systems

### 1. Is there any unused or redundant piping?

- Yes Isolate the piping from the rest of the system, then remove it.
- No No action required.

Done by: \_\_\_\_\_

Date: \_\_\_\_\_

### 2. Does the steam and condensate system use the best piping size? Is steam generated close to where it is used?

- Yes No action required.
- No Have a qualified contractor redesign the system to optimize it. Move steam-generating or steam-using equipment closer to each other. If that is not possible, consider non-steam equipment.

Done by: \_\_\_\_\_

Date: \_\_\_\_\_

### 3. Can you see or hear any steam leaks?

- Yes Repair leaks as soon as possible.
- No Recheck monthly, using ultrasonic detectors, listening rods, pyrometers or stethoscopes.
- Have a qualified contractor or representative from the manufacturer of your steam traps and valves check for leaks.

Done by: \_\_\_\_\_

Date: \_\_\_\_\_

### 4. Are steam pipes insulated?

- Yes Regularly inspect and replace damaged insulation. Add more insulation if it is not cool enough to touch.
- No Insulate pipes as soon as possible.

Done by: \_\_\_\_\_

Date: \_\_\_\_\_

### 5. Is the insulation dry?

- Yes Check monthly.
- No Find the moisture source and fix it. For example, if the pipe is leaking, repair it.

Done by: \_\_\_\_\_

Date: \_\_\_\_\_

### 6. Is the insulation (including the vapour barriers and weatherproof jackets) intact?

- Yes Check monthly.
- No Replace damaged material.

Done by: \_\_\_\_\_

Date: \_\_\_\_\_

### 7. Are the measured steam and condensate flows equal?

- Yes No action is required.
- No Inspect the condensate piping for leaks.

Done by: \_\_\_\_\_

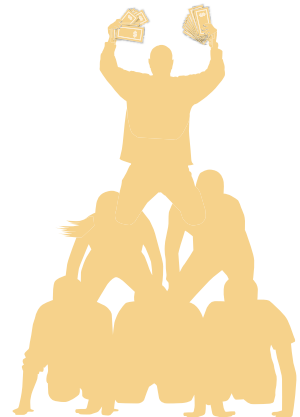
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### 8. Is the insulation thick enough? (Insulation should be cool enough to touch.)

- Yes No action required.
- No Add more insulation or evaluate the economics of replacing the insulation with another type.

Done by: \_\_\_\_\_

Date: \_\_\_\_\_



Aussi disponible en français sous le titre : ENSEMBLE, ÉCONOMISONS L'ÉNERGIE! Les réseaux de tuyauterie de vapeur et de condensat

For more information: [oee.nrcan.gc.ca/industrial](http://oee.nrcan.gc.ca/industrial)

