

# *Eddy's Boilerhouse News*

## TIP OF THE MONTH FOR THE MAINTENANCE DEPARTMENT

By Eddy Emerson

### **Reclaiming Heat from Waste Streams**

Much of what we have covered in the last few newsletters can be lumped under the heading “*Miscellaneous Energy Savings.*” I have one more suggestion that will help you get the last bit of heat energy from your waste flows leaving the plant.

Let us assume that you have a considerable amount of hot waste water from the process for your boiler plant that is being discharged to the sewer because it is contaminated. Even though it may be at a relatively low temperature, and at atmospheric pressure, there is still hope of reclaiming some of the heat from it. As long as its temperature is higher than about 20°F above the incoming water to the boiler plant, it is possible to get more heat out of it.

A simple solution that has been done is to form a concrete trench or trough in the ground, with the top edge about a foot above the surface, and pipe the waste stream into one end of this trough, and out the other end. The trough forms a holding tank, open to the air. You may cover it if there is a safety problem from its use.

Into this trough you lower a nest of steel coils, carrying the incoming make-up water for the boiler. The flow should be counter flow, with the make-up water coming in the end where the waste stream leaves the trough, to enable you to get the maximum heat from the stream before it goes to the sewer or waste system. The larger the trough volume, the longer time is available for transfer of heat into the makeup water coils.

The process or production department should be directly involved in this proposal; I suggest that they be consulted as to the advisability of attempting it. There may be something in the waste stream that could cause problems, such as toxic substances that could contaminate the make-up water if the coils leak. Also, the design of the coils, the holding trough, and the materials required should be decided by the department producing the waste stream.

If in the final analysis, the project is left up to you to design and carry through to completion. I would suggest this only be done if you have a large amount of waste, because it will cost a moderate amount of money and have only a minimum savings. In other words, it will take a while for the pay back, but it is still worth doing.

There are many different ways to make use of waste heat and I would not rule out any idea. Look around your plant and if you have hot air or hot liquid leaving the building think about how that can be changed into useable energy. This should give you a chance to expand your thinking to other heat-reclaiming horizons throughout your plant.

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