STEAM MANAGEMENT INC.

800.731.0131
steammgt.com

Northeast Office
51 Melcher Street
First Floor
Boston, MA 02210

Midwest Office
101 James Street
Suite 304
Ludington, MI 49431

CASE STUDY: Steam Condensate Recovery

Customer:

Built in 1928, the Philadelphia Museum of Art was modernizing and expanding their facility by 90,000 square feet to increase it's gallery and public spaces.

Site Conditions

The Philadelphia Museum of Art (PMA) is being supplied by a district heating system owned and operated by Antin Infrastructure Partners, Inc. The district heating system supplies the PMA, Hospitals and UPenn. The contract with PMA does not require PMA to return the steam condensate to the district heating plant. The PMA main building steam condensate was being discharged to sewer. The Building Code required that the condensate be cooled before being discharged to the sewer. This cooling was done by mixing potable water with the condensate before discharging the mixed water to sewer.

SMI Solution:

The PMA steam condensate system was retrofitted with collection/storage and conveyance equipment to recover this wasted water and use it to offset the makeup water being used in the facility air conditioning cooling towers.

The steam condensate water is essentially distilled water since the steam generating process eliminates most of the total solids in the water. The mixing of the steam condensate with potable water to lower its temperature ends up with an ideal water quality to be used for end user purposes such as cooling tower makeup water, plumbing toilet flush water and landscape irrigation water, thus offsetting part of the costs for purchased water. This represents a potential opportunity to recover not only the condensate water but also the cooling water being discharged, which represents energy and water cost savings for the end user of the district heating systems.

In this case the recovered water is being used for makeup cooling tower water. The PMA cooling towers are used to remove heat from the building air conditioning system. Cooling a stream of water to a lower temperature using evaporation does this. Therefore, this evaporated water in the cooling towers needs to be continually replaced in the cooling tower process.

SMI Impact:

Annual Sewer & Water Cost Savings: $68,785	Condensate Energy Cost Savings: $80,982	Annual Water & Savings: 14,680,000 Gallons

Schedule An Assessment of Your Facility.

Call our experts to set up a consultation.

Keith Carlsen II, C.E.M. | (410) 903-2613 | kcarlsen@steammgt.com