Evaporator Condensate Heat Recovery Project

Summary

Company name:	Arrow Group Naas (Simply Soups)
Project actions:	Recover heat from evaporator condensate to pre-heat hot process water tank
Dates of project:	September 2014 to December 2014
Contract type:	Conventional
Finance source:	Internal
Additional funding:	None
Total project cost:	€50,000
Simple payback time:	<12 months
Savings verification:	International Performance Measurement & Verification Protocol (IPMVP) - Option B

Twin effect rising film evaporator

	Annual Energy (kWh)	Annual Costs (€)	Annual CO_2 (kg)
Savings (% in parentheses)	(9% saving)	(8.5% saving)	(8.1% saving)

"Implementation of the Evaporator Heat Recovery Project is a significant milestone towards achieving the organisation's energy performance objectives and targets", Barry Brophy, Plant Manager

Background

Part of the Queally Group of companies, the Arrow Group's Naas facility is a 30-acre food processing and cold storage site, comprising Dawn Farm Foods, Simply Soups, QK Meats, Pasta Concepts and QK Cold Stores.

The Arrow Group is committed to achieving continuous improvement in energy performance in order to minimise the impact of the site's activities on the environment, and to reduce the site's operating costs.

Over the past five years, considerable resources have been invested in energy efficiency projects. This effort has resulted in a significant improvement in energy performance. The site is currently implementing ISO50001, with a target for certification before the end of 2015.

Arrow Group, Naas

Project Description

Located on the Arrow Group site, the Simply Soups factory manufactures concentrated stocks for third party supply to ready-made meal manufacturers in the UK. The factory uses a twin effect rising-film evaporator to concentrate the stock solutions. Waste heat from the evaporator steam and product condensate was rejected to atmosphere through cooling towers.

Simply Soups uses approximately 150 m^3/day of 60°C hot water for process and wash down requirements. Previously, well water at 10°C was heated to this level using a steam plate heat exchanger. This project involves recovering the waste heat from the evaporator condensate, and using this heat to pre-heat the process and wash-down water.

The scope of the project entailed:
1. Making modification to the existing tank to allow for all control devices, pipework connections, etc.
2. Connecting new pipework from the existing well water system and evaporator heat exchangers to the tank. This includes all necessary fittings, temperature transmitters, flow meters and control valves.
3. Installing new temperature transmitters and flow meters on to the heat recovery, heat exchanger pipework.
4. Installing and commissioning all new control devices & instruments and implementing a control strategy.

Phase 2 of the project will include a LPHW boiler and replacing the steam heat exchanger to raise the pre-heated water to 60degC.

Benefits

Evaporate control room

Simply Soups is the largest user of steam on site. The project provides the following benefits to the site:

1. Reduces steam consumption by 350 kg/hour; thereby increasing available capacity of the boilers by 5%.
2. Reduces the energy and cost associated with hot water generation by 55%.
3. Phase 2 of the project will provide additional redundancy for hot water generation.

"Recovering heat from the evaporator will provide additional redundancy in hot water generation", Shane Raftery, Project Manager

Client recommends…

Client(s)

Barry Brophy
Plant Manager
Simply Soups

Shane Raftery
Project Manager
Simply Soups

Contractor/Consultant/Supplier(s)

Capstone Energy Management
Knowledge shared - Energy spared

James Conroy
Energy Consultant
Capstone Energy Management Ltd.
www.capstoneenergy.ie
M: 087 977 4037