CASE STUDY

Biotechnology Plant

Pharmaceuticals | USA | GEM™ Steam Traps

Overview

An engineering firm performed measurement and verification (M&V) for a Pacific Gas and Electric (PG&E) biotech plant customer under the Commercial Industrial Boiler Efficiency Program (CIBEP). As the largest Biotechnology Corporation in South San Francisco, this customer discovers, develops, manufactures, and commercializes medicines to treat patients with serious or life-threatening medical conditions.

Impact

- 298 replaced mechanical traps (34 failed)
- Annual natural gas energy savings of $125,766
- Annual maintenance savings of $87,263
- $124,373.06 in CIBEP incentives
- Simple payback of 3.5 years
- Annual CO_2 emission reduction of 904,478 pounds

Solution

Steam is used in nearly all major industrial processes, yet mechanical steam traps are the standard choice for industry despite their recognized average failure rate of approximately 10% per year. The failures cost organizations thousands each year in replacement parts and energy losses.

This customer was an early adopter of energy efficiency, working towards a low-carbon future well before even the Paris Agreement, and remains committed to achieving net-zero in line with the external framework provided by SBTi.

The M&V involved an energy efficiency measure (EEM) for replacement of mechanical-type steam traps at the biotech plant with 298 new, more-efficient, GEM Multi-Stage-Orifice Venturi Steam Traps. The EEM was then evaluated for a CIBEP incentive. Based on the substantial projected annual savings of natural gas and utility costs, combined with the estimated CO_2 emissions reductions that Thermal Energy's GEM Steam Traps would deliver, the project was awarded over $124,000 in CIBEP incentives.

Thermal Energy worked closely with the customer to verify the installation of the new multi-stage orifice GEM Traps. The original mechanical steam traps were removed and replaced with GEM Traps with strainers and blow down valves. Of the 298 mechanical traps replaced, 34 were identified as having failed open and were passing live steam. The reduction in functional steam loss will result in reduced boiler fuel consumption at the plant.

Following installation, Thermal energy conducted commissioning of each new trap installed, which included taking infrared thermal images to verify their operation. The biotech plant engineers were provided training on GEM Trap maintenance, involving semi-annual blow downs and annual cleaning of strainers. The new GEM Yraps, which are guaranteed for 10 years, are expected to save the plant over $213,000/year in combined utility and maintenance costs.

Figures shown in USD

www.thermalenergy.com
sales@thermalenergy.com