



CASE STUDY

INDUSTRY: NON-FERROUS METAL



CUSTOMER: Gangsu Rare Earth New Material Limited-Liability Company (GSRE)

LOCATION: Baiyin, Gansu Province, China

BACKGROUND: Armstrong International provided an overall retrofit to GSRE's factory-wide steam trap system to build a sound condensate recovery system, a pressure-reducing system, a condensate reuse system and a hot water heating system. The customer's steam trap system was retrofitted and the condensate recovery system was improved.

SCOPE OF WORK: Armstrong installed condensate pressure recovery pipelines, pressurized condensate pipelines and an electric pump unit with a waste steam recovery. A condensing device was also installed in the factory. A conductivity monitoring/display/auto-switch system was also added. When the condensate conductivity exceeds the normal value, the conductivity control/display box gives an alarm and automatically switches to direct discharging with an electronic control valve.

A condensate reuse system was built for cyclic utilization, recycling all the heat and water from the condensate. A hot water heating system was built by removing the old steam heating radiator and pipelines. The heat exchanger was altered to a two-level heat exchange system so that the return water exchanges heat with the condensate discharged to the power house. Inadequate heat is supplemented by steam.

The steam pressure-reducing system was improved. Pressure reducing valves were installed in the plant's high-tech zone. The condensate recovery station runs automatically while the operator controls it remotely.

BENEFITS: This project has provided significant energy savings since implementation by reducing the boiler's capacity to 20 ton/hr (18,143.7 kg/hr) along with a reverse osmosis unit. Venting of waste steam into the atmosphere and direct discharge of condensate have been avoided. GSRE thinks highly of this project since it not only has provided impressive energy savings, but also helps the company understand energy efficiency of the steam condensate system better.

The energy efficiency is reflected on steam saving, condensate recovery and condensate heat reuse. With the steam saved equal to 18,000 tons (16,329,325 kg) of coal per year and 160,000 tons (145,149,558 kg) of condensate recovered per year, this project will bring considerable economic benefits.



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