



HA BAC NITROGEN FERTILIZERS AND CHEMICALS

Steam Leak Survey, Leak Repair and Pipeline Insulation

SUMMARY OF THE OPTION

The state owned company Ha Bac Nitrogenous Fertilizers and Chemical is located about 70 kilometers north of Hanoi. Its main products are: liquid ammonia (NH₃), urea and carbon dioxide (in both solid and liquid forms). At present, to meet the in-situ demand for heat and electricity, the company is equipped with seven pulverized coal-fired boilers to produce superheated steam at a pressure of 39 at (g) and temperature of 450°C. The company is using a common steam pipeline and header to distribute the superheated steam to five steam turbines of the extracting and condensing type for power generation and heat process.

During the energy audit site visit, the quality of the existing insulation was visually examined. Although a precise identification of all damaged insulation sections would require the entire steam distribution system to be inspected with infrared thermography, the visual inspection of the insulation on the steam distribution piping system already revealed some damage. Replacing the damaged sections of the insulation reduces the heat losses and the load on the boiler, thereby saving energy. For purposes of this energy-efficiency measure, it was estimated that 22m² of the insulation were damaged and had to be replaced. The temperature of the exposed steam pipes and valves was in the range of 104°C-384°C. For steam pipeline system, 5 cm glass fiber insulation is typically recommended for pipes and valves. As a result, the surface temperature after insulation is 45°C. This measure brought annual coal savings of 108 tons, which are worth US \$ 2,268 (around 36 million VND). The investment cost of this option including insulation materials (glass fibers...) and civil works amounts to US \$ 656 (around 10.3 million VND). The pay back period is 4 months. In addition, the Team also revealed a great deal of steam leaks on the steam pipeline, which caused the loss of 190 tons coal /year. The investment for fixing the steam leaks amounted to US \$ 1,930 and was paid back in six months. By implementing these options the company reduced its total GHG emission by approximately 748 tons per year.

KEY WORDS

Chemicals, Vietnam, Steam Distribution and Utilization, Leaks, Insulation

FOR MORE INFORMATION

GERIAP National Focal Point (NFP) of Vietnam

Dr. Tran van Nahn, Director VNCPC

Center for Environmental Science and Technology (CEST)/

Vietnam National Cleaner Production Center (VNCPC)

Hi-tech Building, Dai Co Viet Road, Hanoi, Vietnam

Tel: +84-4 8681 686-7

Fax: +84-4 8681 618

Email: vncpc@vncpc.org



GERIAP Company in Vietnam
Ha Bac Nitrogen Fertilizers and chemical company
Tho Xuong ward, Bac Giang town
Vice Director: Giap Van Uoc
Tel: +84-240 854538
Fax: +84-240 855018
Email: pdhabac@hn.vnn.vn

Disclaimer:

This case study was prepared as part of the project “ Greenhouse Gas Emission Reduction from Industry in Asia and the Pacific” (GERIAP). While reasonable efforts have been made to ensure that the contents of this publication are factually correct, UNEP does not accept responsibility for the accuracy or completeness of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this publication. © UNEP, 2006.