

Report Date: May 22, 2012

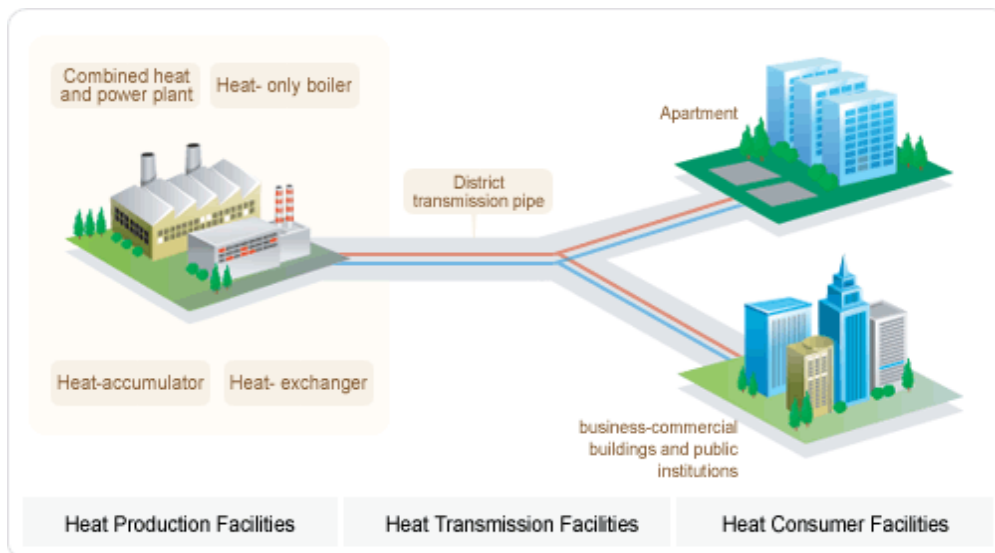
GENERAL INFORMATION

Product: **Pulsarlube M 125cc/PL1**
Industry: Energy (Public)
Customer: **KDHC (Korea District Heating Corporation)**
Application: **Cooling Tower**
Installation: January 9, 2012

BACKGROUND

KDHC, Korea District Heating Corporation, is a state owned district heating energy provider established in 1985. As a public corporation, this company is committed to conduct the district heating business efficiently, save energy and improve environments and promote public benefits and convenience.

KDHC is also diversifying its business cope into the electricity business and the new and renewable energy business, with the goal of providing district cooling and heating services to 2 million households nationwide by 2015 and generating annual sales of 2.6 trillion won.



Heat production & Transmission by KDHC

Major facilities



Combined heat and power plant (CHP)

Combined heat and power facility simultaneously produces heat and electricity, with the advantages of higher energy efficiency than conventional facilities, decentralized power generation and effective environmental protection



Heat- only boiler

The Heat-only boiler is composed of combustion system, ventilation system, water feed system, automatic control system, precipitator, etc. The steam produced by the boiler passes through the heat exchanger and applies heat to District Heating hot water



Heat-exchanger

The district heat exchanger generates hot water for District Heating by utilizing the steam produced from both combined heat and power plant and heat-only boiler

INSTALLATION INFORMATION

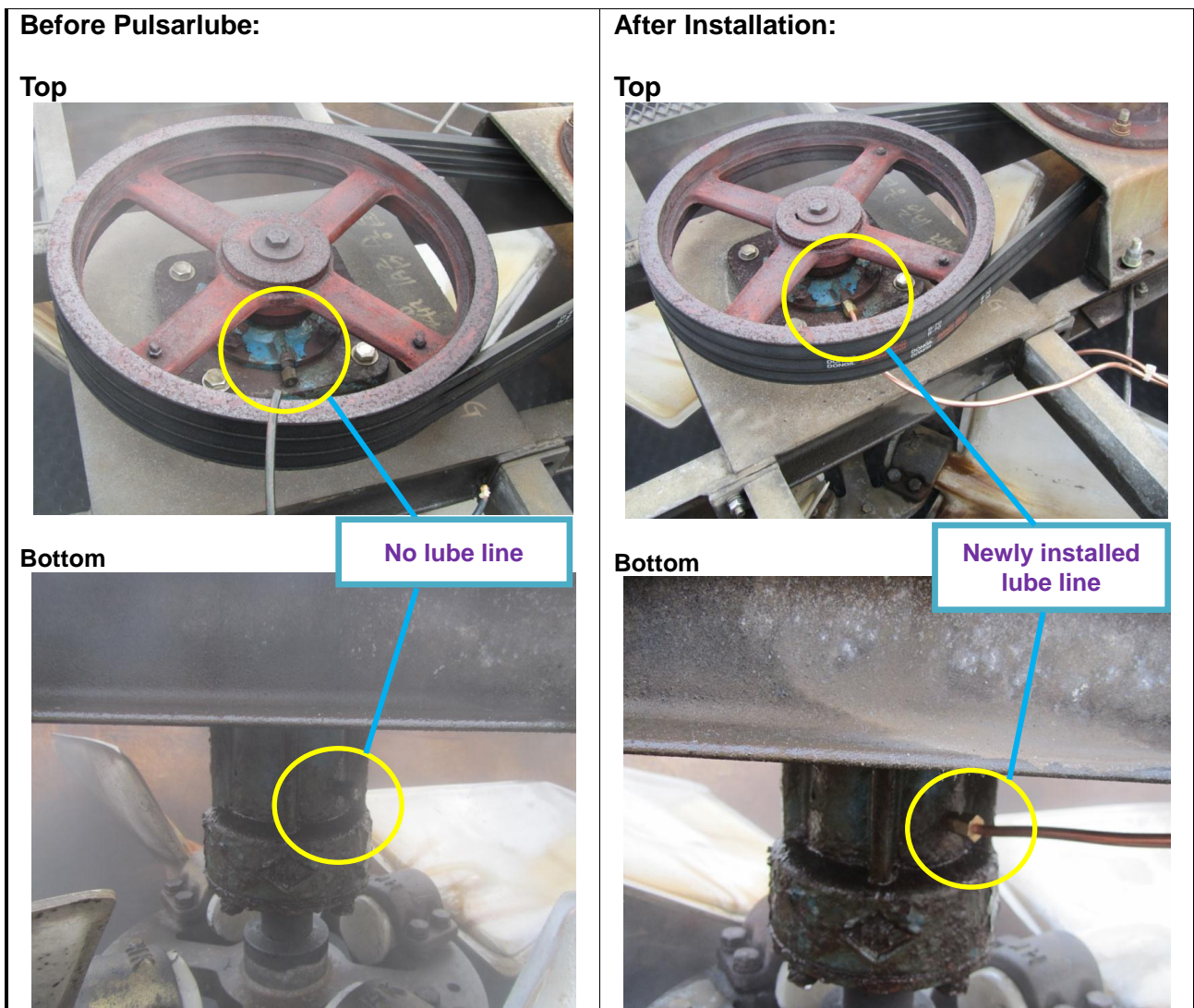
Before installation:

On the top area of the cooling tower, there is a T-valve installed to lubricate both top and bottom bearing via copper tube. We observed that the lube line is gone (found the signs of fracture) and no lubrication has been applied at all.

After installation:

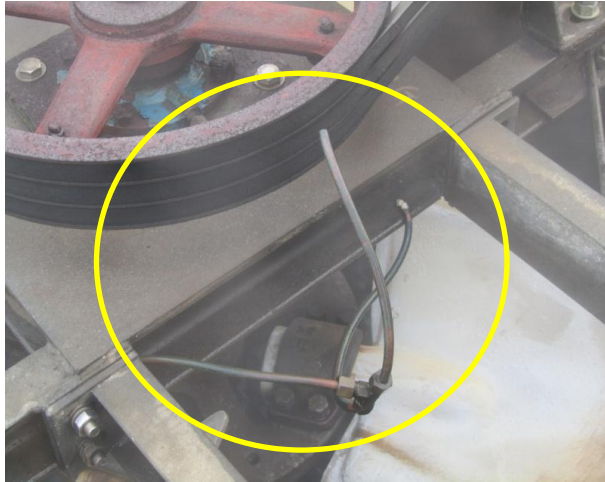
T-valve is dismantled and two units of the Pulsarlube M 125cc filled with PL1 installed on the top area of the cooling tower. New copper tube has also replaced old broken lube line for remote installation.

Refer to following information.



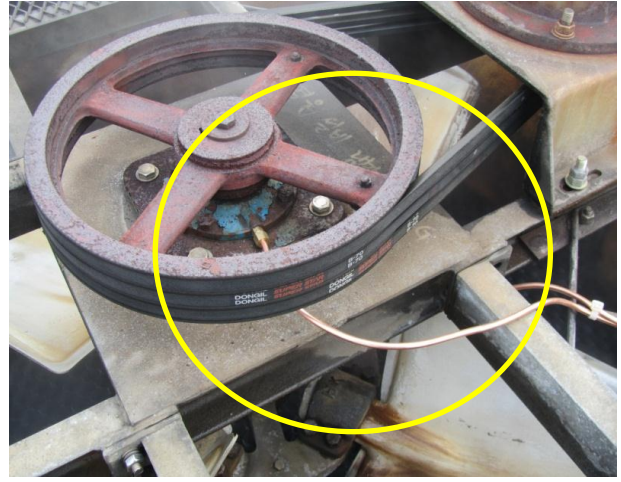
Before Pulsarlube:

T-valve with broken lube line



After Installation:

New lube line without T-valve



No lubrication device



Two Pulsarlube M 125 units installed



Summary



The Maintenance Engineer of KDHC is very satisfied with the result of the use of Pulsarlube M 125cc along with professional installation provided.

He said, due to the height of the Cooling Tower, no one has been willing to manually lubricate bearings even after the lube line is broken.

He will make sure to expand the use of the Pulsarlube M 125cc unit for other cooling towers and similar isolated, hard-to-reach applications.