Unattained 76.6^{0}C recommended boiler temperature and 43.33^{0}C recommended feed water temperature in Oleo Manufacturing Corporation located at South Coast Industrial Estate Bancal, Carmona, Cavite

A Practicum Study

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CHAPTER 1

PROBLEM AND IT'S BACKGROUND

BACKGROUND OF THE STUDY

Oleo Manufacturing Corporation is an oil company producing crude palm, refine, and specialty oil it is located at South Coast Industrial Estate Bo. Bancal, Carmona, Cavite.

In there manufacturing operation of oil they use a Cleaver Brooks Boiler equipment designed and engineer to give long life and excellent service on the job in electrical and mechanical devices supplied as part of the unit were chosen because of their known ability to perform.

This equipment has a minimum recommended boiler water temperature of 76.66^{0}C when water temperature lower than 76.66^{0}C are used, the combustion gases are reduced in temperature to a point where the water vapor condenses and because of that fuel consumption will also increase.

This study focus on the boiler equipment of Oleo Corporation, which has a lower boiler water temperature of 48.8^{0}C<see data presentation> that result to a high fuel consumption of 140,118 Lt./month of bunker oil. This is because of 15.55^{0}C undesired temperature of feed water, which should be a minimum of 43.33^{0}C to maintain the consumption of fuel oil.

By using Economizer, design to increase the temperature of the feed water through the process of recovering exhaust steam coming out from the chimney and transfer heat to the feed water. It can increase the temperature of

feed water of about $10^{o}C$ enough to satisfy the required feed water temperature for the boiler.

STATEMENT OF THE PROBLEM

Unattained 76.66^{0}C recommended boiler temperature and 48.8^{0}C recommended feed water temperature at a pressure of 1.20 atm in the location of Bancal, Carmona, Cavite, which has a 104.80^{0}C water boiling point. That result to excessive fuel consumption of **140,118 Lt. per month** and high fuel cost of about Php 1,401,180 per month due to low temperature of boiler, which is 48.880C, and low temperature of feed water temperature, which is 15.55^{0}C.

OBJECTIVE

General Objective

- To reduce fuel cost of about 50%.

Specific Objective

- To recover exhaust steam
- To satisfy the desired feed water temperature for the boiler

SIGNIFICANT OF THE STUDY

Company – Through this study the company will have an idea on how to lessen fuel consumption. This study will also introduce new equipment that will help to improve and increase the boiler efficiency.

Student – This study will give a brief background on how to improve the efficiency of both small- scale- boiler. This study will give them an overview upon on- the- job training in a certain manufacturing firm.

Readers – This study will serve as basic background regarding the operation of boiler. This study will help them of having an overview in our field of specialization.

SCOPE AND LIMITATION OF THE STUDY

This study focus on the boiler equipment of OLEO manufacturing corporation including the design and capacity of it's output and input. This study cannot exactly state all the detailed specification of the given 2 alternative which the installation of Economizer and Air heater. This study covers only the fuel consumption for the of October to December.

METHODOLOGY

The study make use of causal comparison of fuel consumption at 15.55^{0}C feed water supply and when using an economizer at 43.33^{0}C in the boiler equipment of Oleo Manufacturing Corporation. The authors gathered the data regarding fuel consumption of the boiler from the month of October to December 2001 in the production supervisor's room of the said company. The authors also conduct an actual observation in getting the actual temperature of the feed water and the boiler.

DEFINITION OF TERMS

Economizer – It is mainly use in the boiler to recover the exhaust steam that will transfer to the incoming feed water.

Boiler - It is a closed vessel in which water, under pressure is transformed into steam by application of heat.

Exhaust Steam – Steam coming out from the chimney