



*Operating floor of Turbine Room showing one of the "5000 KW" turbo-generators in foreground with the two smaller turbines and switchboard in the background.*

Efficient operation of the stoker-fed boilers calls for the use of 1½" x 0 Nut and Slack of a good quality, medium volatile, high fusion coal. The pulverized fuel boilers, on the other hand, can be efficiently operated with coal of lesser quality including the cheaper carbon coals which are ¼" x 0 in size.

The operation of the boilers is completely automatic, which means that as the demand for steam changes, the controls automatically adjust the flow of coal and air, while maintaining the required header pressure and draft conditions throughout the furnace. This is accomplished with combustion control instruments, which permit operation from master controls or by hand.

Water feed is heated before it enters the boilers. The purpose of this is to liberate oxygen and entrained gasses and to bring its temperature closer to that within the boiler drum.

In high pressure boilers, such as ours, the water within the boilers must be chemically treated to prevent corrosion, caustic embrittlement and the formation of scale in the tubes. It is the responsibility of the Filter Plant personnel to supervise this and to maintain the proper chemical balance.

A 225 foot brick chimney provides draft for the four stoker-fed boilers; but in the case of the pulverized fuel boilers, this function is performed by induced draft fans.

Approximately 8% of the steam generated is used at the boiler plant to operate its auxiliaries.

The balance is sent to the Turbine Room for generation of power and for distribution to the paper mill and cellophane plant for process and heat.

This steam is conveyed through four overhead steamlines to the Turbine Room. Here are located four turbo-generators rated at 2000, 4000 and two at 5000 KW respectively, making a total capacity of 16,000 KW. Power is generated at two voltages—575 on the two smaller units and 4160 on the two larger units. All power generated is 60 cycle AC.

The turbines operate at the high speed of 3600 revolutions per minute which is automatically controlled by a governor. Barring emergencies, the turbines can be operated continuously for long periods of time without being taken off the line, but they require the constant attention of the operators.

A tie-in permits purchase of power from Duke Power Company which maintains a sub-station adjacent to the Turbine Room. By choice, we can operate synchronized with Duke or independently. Of the total power used approximately 7% is purchased.

Thus all power used is generated at or passes through the Turbine Room where all essential