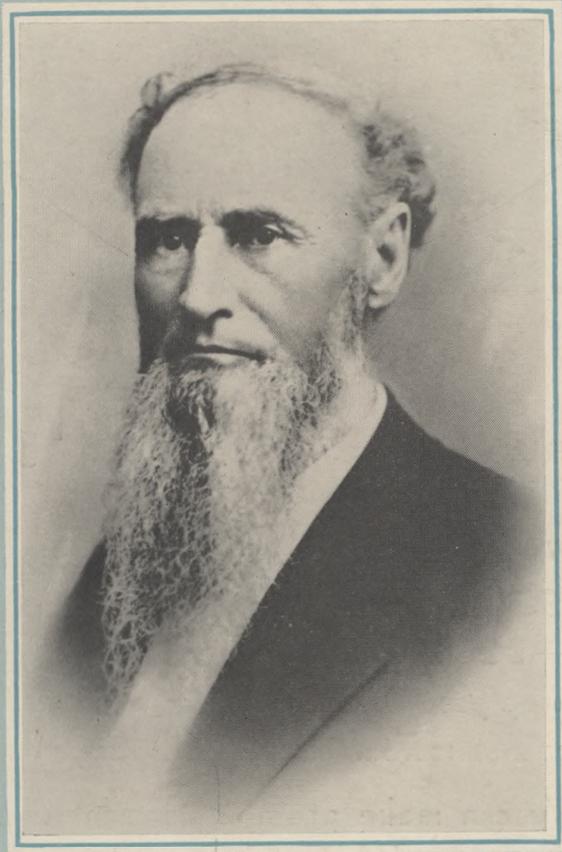


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BIRDSILL HOLLY

District Heating Plant Modernized for Increased Load Due to Conversions by Owners from Oil and Coal

By H. GEORGE LOUSER *

Lebanon Steam Company doubles steaming capacity by substituting bituminous mix for straight anthracite and utilizing existing stoker and coal conveying systems.

The Lebanon Steam Company of Lebanon, Pa., a district heating utility chartered in 1887, and serving 225 business, residential, and public building consumers, had been faced with growing fuel load factor, and rate problems for the past two heating seasons brought on by the fuel oil shortage in the Eastern States.

These problems, quite critical to a Company this small, due to the fact that it must operate and maintain services under local, state and Federal regulatory laws applying to utilities, as well as under the Emergency Regulations and Laws affecting every business these days, were met and solved by revamping the boiler plant to burn a mixture of bituminous and anthracite No. 4 Barley Coal on two Huber stokers. In 1935 for economic reasons these stokers had previously been converted to hand fire anthracite of Rice and Buck sizes.

The boiler plant consists of two 209 hp Babcock and Wilcox hand-fired boilers which will now be used for stand-by service and two 269 hp Babcock and Wilcox boilers equipped with Huber full mechanical over-feed stokers plus necessary heaters, pumps, and other accessories. These latter boilers and stokers were installed in 1929 to replace four 100 hp H. R. T. boilers which had served the Company from 1887 and 1890. The two boilers with stokers were originally designed for bituminous coal and handled the entire plant load up to 1935. Due to the depressed prices of the smaller sizes of anthracite at that time, and the close trucking distance to the Southern anthracite region, it was decided to change the plant over for hand-firing with anthracite.

Accordingly, pin-hole grates and blowers were installed in all boilers and a flight

conveyor, serving the entire plant, was built to facilitate the unloading of coal from trailer trucks to the firing floor in front of each boiler. The extra unused boiler capacity made this plan entirely practical and feasible from an economic standpoint up until the past heating season.

It then became evident that to maintain existing rate schedules and services, not only to present consumers but also for additional oil and coal conversion customers, the method of steam production would again have to be changed, as the safe load factor with hand firing of anthracite had been reached.

The Huber stokers have been thoroughly reconditioned and the coal handling system brought up to date by the addition of storage hoppers on the stoker fronts under the conveyor. The boilers can now be brought up to 300% rating by use of the stokers plus the blowers which had previously been used to hand-fire the anthracite.

A mix of 60% bituminous costing \$5.20 per net ton in the plant, and 40% Barley No. 4, costing \$2.10 delivered, will be burned the coming season. This will result in a saving from increased boiler efficiency due to stoker operation, and through the elimination of two helpers who were necessary with hand-fired operation. The flight conveyor will relieve the firemen for other duties, as all the ashes and flue dirt will be removed by this method instead of by handbarrow as heretofore.

The damper regulator has been re-installed on the stoker controls and dampers, and will give automatic control once again.

Two firemen helpers and one extra truck driver will be unnecessary over the five

* President of the Company.

heavy firing months resulting in a saving in production labor cost. Extra revenue will also be derived from the sale of ashes which previously had to be given away due to hand loading conditions.

By increasing the efficiency of the plant with respect to the load now able to be carried by the stoker fed boilers, by the lowered ash content of the mix against current anthracite Rice and Buck cost, and by the production system labor savings, it is expected to amortize the cost of the change-over within the first six months of the coming heating season.

Additional advantages by this change in firing are; more fuel sources, better satisfied labor, lessened truck operating trouble, and lessened flue dirt and ash disposal problems. The company is also in a better position to take advantage of future price and market conditions in the solid fuels

field by now being able to buy and burn, separately, or in combination, both fuels in direct ratio to operating and marketing conditions over the entire heating season.

All changes were designed and made by plant personnel during the non-operating summer months, and all casting and fabricating work was done locally, wherever possible, in order to give the Company control over delivery dates as the work progressed. Critical materials were saved by employing used steel sheets for the hoppers in troughs, and concrete blocks for ash hoppers and by trading in the pin-hole grates from the stoker boilers for grate bars of proper mesh.

Truly, necessity nurtures invention. In this case, problems arising from the shortages brought on by war needs were met and solved by using existing facilities and the materials at hand.

Announcements

Program for 1943-44

While the Executive Committee in consultation with the Chairmen of the Standing Committees at their meeting in Pittsburgh on September 29th selected most of the problems and investigations to be included in the 1943 Program of each Committee, those who may have suggestions to offer of additional items should send them in promptly either to Headquarters or to the appropriate chairmen for consideration.

Instructions to Committees

Committee Chairmen, Authors and Speakers are all being mailed copies of the Association "Instruction to Committee Members, Authors and Speakers for Preparing N. D. H. A. Papers and Reports". These directions MUST BE FOLLOWED very carefully. The instructions also were printed and may be found in the January 1939 Bulletin, pages 74 to 79 inclusive. If you are preparing any data to be presented at the next Annual Meeting and do not have a set of Instructions, please write to Headquarters for one. March 1, 1944, is the date on which all papers should be in the Secretary's hands to permit approval by the Publication Committee and preprinting.

Again we say—

SEND US THE NEWS!

You like to know what is being done, others want to know what you are doing. News and articles for the January Bulletin should reach Headquarters not later than December 1st.

1944 Dues

Before the next number of the Bulletin is in your hands it will be the new year and 1944 dues will be payable. On December 15th dues notices will be sent to all members and the Secretary urges that you respond promptly.

Headquarters

The Secretary on request will supply available information on the industry. Write John F. Collins, Jr., 827 N. Euclid Ave., Pittsburgh, Pennsylvania.

Our Regrets

On page 200 of the July Bulletin Victor Heinrich is incorrectly listed as a new Class "D" member. He is a Class "B" member.