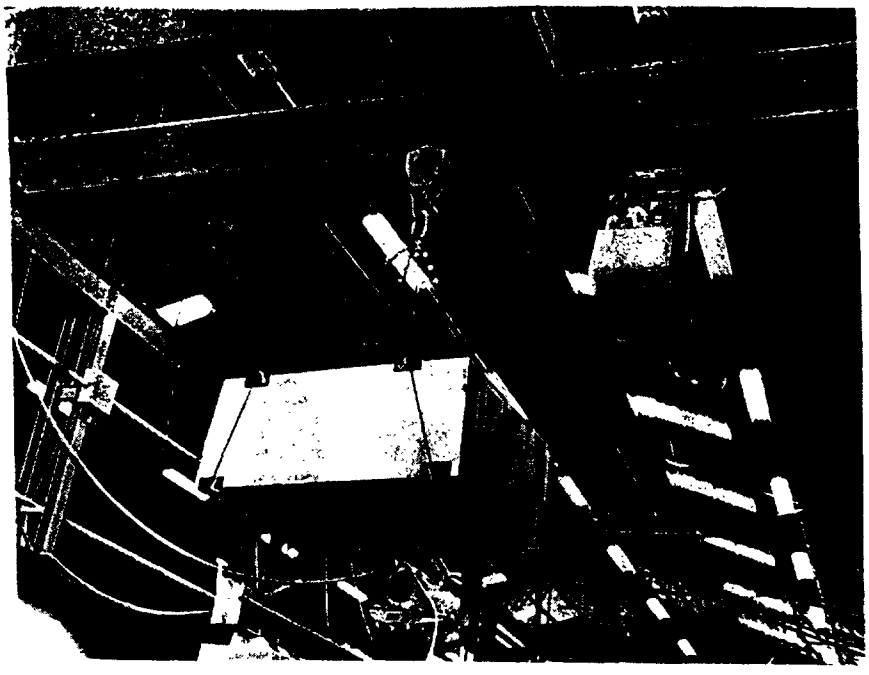


Ed Weaver, in cab of crane, moves 15 ton rough block for column cap sideways to the facing saw and starts lowering marble block.

moves pieces of marble, both small and large, to and from various fabricating machines. Marble pieces range from rough blocks direct from the quarries to finished column caps and column segments. Column segments can run from 10 to 15 tons in finished weight. Other special pieces occasionally weigh close to maximum safe limits of the crane.

In the opening between the buildings, the crane unloads varying amounts of rough, heavy stock from rail cars and trucks, and also loads finished heavy material into cars and trucks for shipment.

The 36" diameter monolithic columns across the east front of the Capitol in Washington, D. C., were all handled by this crane. Each finished column was 24 ft 9-9/16 inches high.

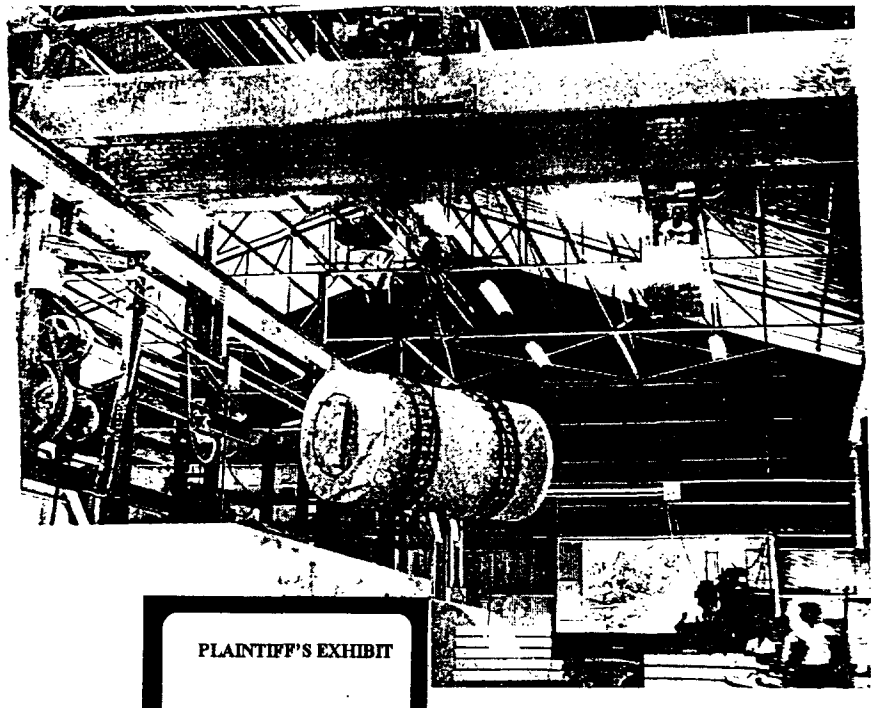
Currently the mill is fabricating the segmented columns for the main portico and entrance of the New House Office building in Washington. Six segments will make up each column. Diameters run from 5 ft 6 inches at the base to 4 ft 11 inches at the cap. The Shaw-Box Crane handles all these segments in and out of the mill from rough quarry stock through all the fabricating processes.

Positive control and smoothness in action are most important in handling this type of material in its finished state. A chipped or cracked piece of finished material can represent a substantial loss

Care must be exercised especially in the loading and shipping operation.

The size and weight of the material handled varies greatly. This crane is used extensively for the heavier work, but between such lifts it assists in moving much of the smaller and lighter work.

"In the normal operation of the crane, we have been able to demonstrate its efficiency and versatility by using it both inside and outside the mill to lift heavy material. The crane has had many heavy, near capacity, lifts. Among these were several large pieces of Tennessee marble which weighed in at over 19 tons each. These were for the new Smithsonian Institution building currently being constructed in Washington. It lifted these blocks with no trouble. It runs smoothly and quietly and at all times gives us positive control over our lifting problems," states Mr. Wilbur Hattendorf, plant manager at Nelson.



Column segment being lifted and shifted from one point in the mill to another. Segment weighs about 15 tons

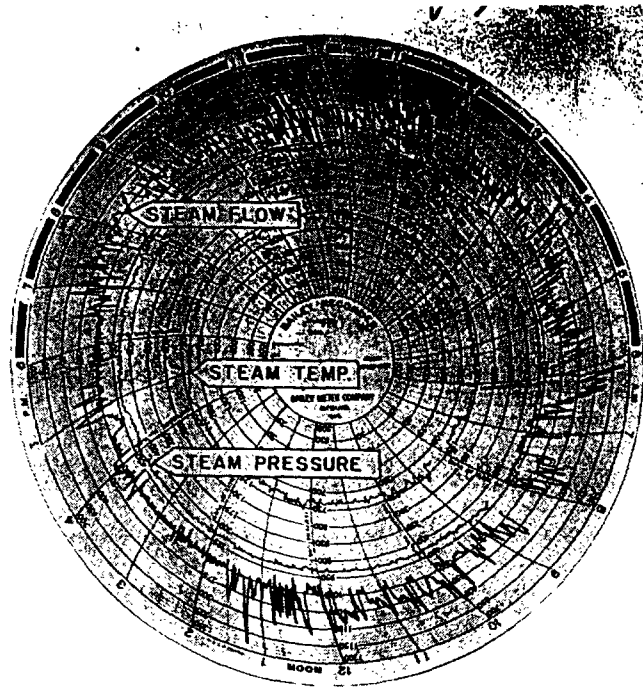
PLAINTIFF'S EXHIBIT

RS-259

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Case: Pensacola Paper Mill

Four Problems Licked By One Installation



By H. R. EMERY, Executive Power Engineer
and
C. S. ANDERSON, JR., Assistant Plant Engineer

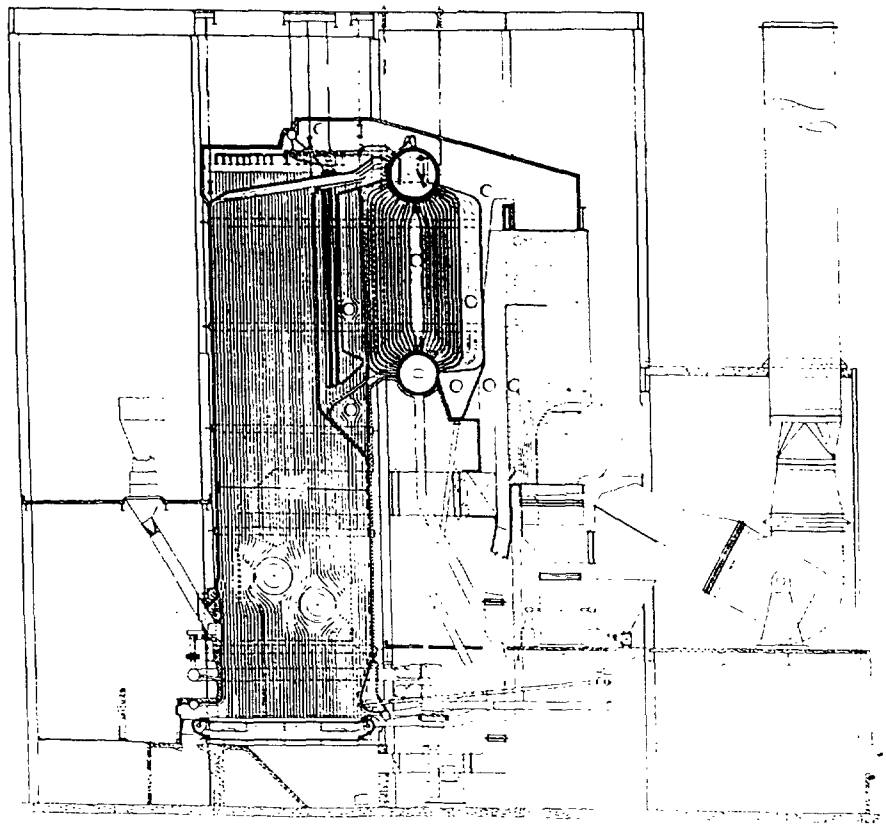
THE PENSACOLA St. Regis Paper Mill had, through recent years of increasing production, developed steam and electric power shortages which resulted in a study being made of the present and future power potential. The problems were as follows:

1. Steam was in short supply resulting in overloading of the existing boilers, and a lack of outage time for proper maintenance.

2. The existing bark burners were inadequate to burn available bark, creating a disposal problem. In addition, two of these boilers were low pressure units. Their use cut down on the electric power that could be generated in the non-condensing sections of the extraction turbine, thus further overloading condensers.

3. The current electric power supply was limited. Relatively high cost power had to be purchased to supplement St. Regis generation.

4. Continued production increases resulted in further aggravation of all of the above problems.



The Solution

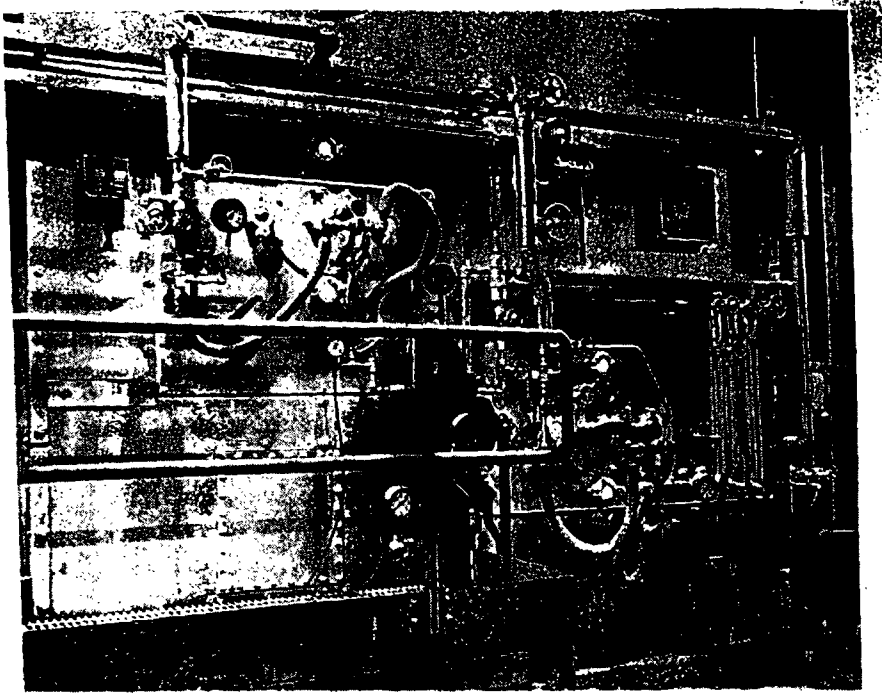
A study was made by the mill power engineer, which considered all of the above needs in addition to predicting the expected power requirements for the ultimate capacity of the existing mill. This study indicated that the installation of a bark burning and gas or oil fired boiler, operated at the 400 psig pressure level, would relieve the immediate steam and bark burning capacity limitations. Designing the boiler for future 1250 psig and 900 F operation would fit in with plans for a future topping turbine, which might well be installed along with a high pressure recovery boiler.

Based on this study, management approved the installation of a bark burning boiler as a first step of this program.

Jackson and Moreland, Inc. was selected as the consulting firm. A 250,000 pound per hour Riley boiler for combination bark and gas or oil firing was purchased.

The boiler, arranged to operate at 450 psig and 650 F

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Two flare type burners are installed in each furnace sidewall. Firing aisle view shows four pneumatic distributors.

and designed for future operation at 1250 psig and 900 F, is equipped with a 17′ wide by 19′ long Riley traveling grate spreader stoker. The twin type grate is powered by two Riley hydraulic drive units. The unit has a capacity for burning 46,000 lb of bark per hour. Four Riley flare type burners installed in furnace side walls are designed for future conversion for pulverized coal firing.

A Riley overfire air and cinder return system complete with three sand separators handles refiring from boiler and dust collector hoppers.

Bark handling equipment, selected to handle bark directly as it comes from the barking drums with a minimum by-pass storage provided, consists of a Montgomery Eat-Rite hog, which discharges to a Merrick 30″ weighing belt conveyor. This conveyor feeds a 25 x 30 Radar wood waste feeder, which supplies bark through a cyclone to a Carrier vibrating conveyor bark proportioner. The proportioner distributes the bark evenly to four Riley pneumatic distributors.

Other auxiliary equipment, including a 700 gpm Cochrane demineralizer, was selected and the installation was made by Mid-Valley, Inc.



The Result

In the first eight months of operation the results indicated that the boiler would fulfill all primary goals of the installation.

Burning the total mill production of bark with make-up gas fuel to meet steam load demands, the unit has accounted for an 11.5% reduction in purchase fuel required for steam generation. This has been realized by increased utilization of available bark fuel as well as increased efficiency of bark burning.

The 250,000 lb per hour boiler has operated at 275,000 lb per hour for periods up to 10 hours and over 300,000 lb per hour for periods up to 1 hour in 24 hours.

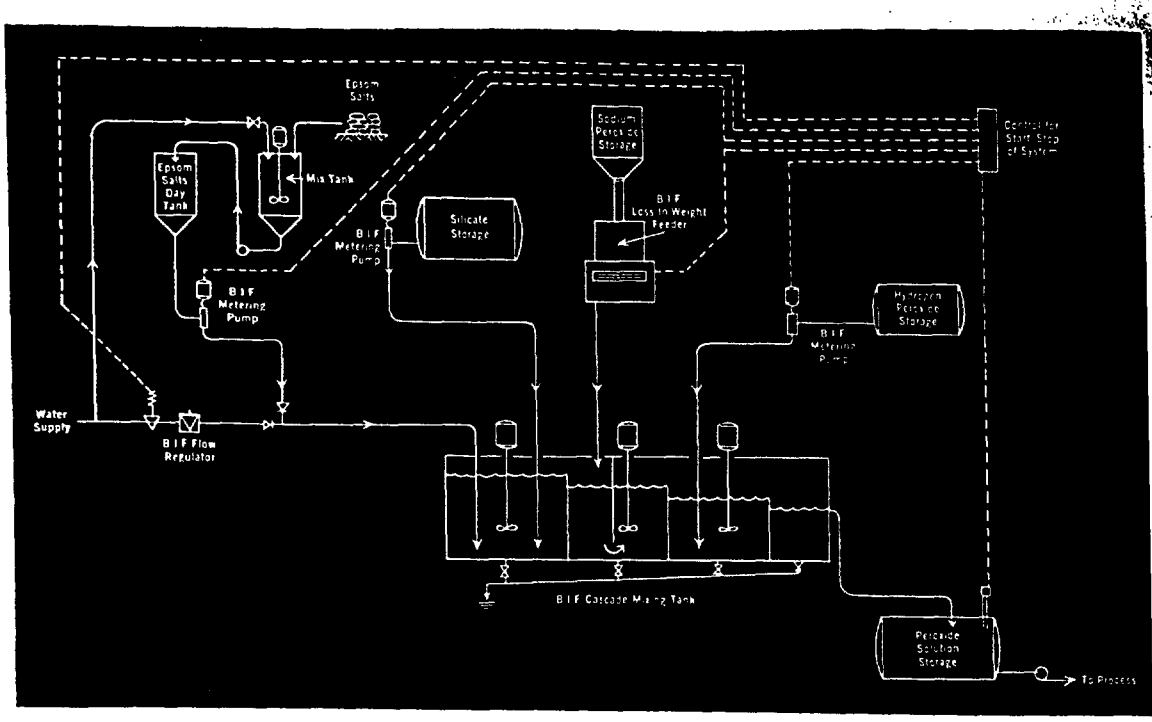
The two low pressure steam generators along with an older bark burning boiler have been retired from service which results in higher availability of by-product power from process steam requirements. Excessive overloads on previously existing power boilers have been eliminated, and the additional steam generating capacity has permitted maintenance shutdown of any other single boiler without curtailment of production.

Although severe abrasion due to sand laden bark has been observed in the hog and pneumatic conveying system, recent fire side inspection of the boiler from grate to stack disclosed no concentration of wear and no significant abrasion.

After six months operation with demineralized make-up, internal inspection of both new and existing boilers indicates a gratifying improvement in boiler water conditions.

The plant personnel is well satisfied with the new steam generator installation and its associated equipment.

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Case 3 — Southern Paper Mill

Continuous Feeders Provide Accurate Control of Chemicals

A SOUTHERN paper mill recently completed construction of expanded facilities for the manufacture of groundwood pulp. As part of a program to improve quality of their product, the mill was equipped with multiple stage pulp bleaching for better brightness of the finished papers.

Equipment to provide a continuous hydrosulfite and a continuous peroxide bleach stage was installed, with the arrangement suitable for use of either or both stages. The quantities of chemical involved indicated that savings could be effected by taking advantage of bulk container shipments and utilizing high accuracy feeding equipment. Since these chemicals are extremely active oxidizing agents, the feeders had to provide accuracy and safety in handling of the materials.

The plant installed an Omega Loss-In-Weight gravimetric feeder for each of the chemicals. The feeders (supplied by B-I-F Industries) keep the chemicals enclosed at all times, and the entire hopper is mounted on a beam scale system. The rate of material feed is determined by retracting the beam poise at the rate desired and, through a simple mechanical closed loop control, matching the rate of withdrawal of material from the hopper so that the scale beam remains in balance at all times.

The hopper and feed mechanism are completely enclosed and the scale beam and control system are not subjected to chemical corrosion. There is, therefore, no chance for chemical to escape into the room where it might be dangerous to operating personnel or equipment. Since the material is kept under control at all times, there is no possibility for cumulative weighing or feeding error and the optimum accuracy is achieved.

Case 4 — Texas Aluminum Plant

Paint Lives 10-Years on Hot Surfaces

THIS PROGRESS report brings up-to-date information on the condition of engine exhaust stacks at Reynolds Metals Company's San Patricio plant near Corpus Christi, Texas. This was the first job treated with the Briner Silicone System.

Painted 10 years ago, the present report estimates that the finish will require only minor touch-up by 1964. Previous to that application, a 90 day life for paint on exhaust stacks was considered an excellent record among diesel operators.

J. M. Hammock, vice-president of Briner Paint Co. of Corpus Christi, Texas stated that in 1952, three stacks were painted by three different procedures and observed for five months. "At the end of that period, one stack was far superior to the others in condition and this method was chosen for application to all.

"On the 42 Cooper Bessemer stacks, we sandblasted to white metal and applied one coat of Briner Silicone Primer #2905 to the cold stack. We then ran the engine

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