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BRIEF DESCRIPTION OF THE
DALLAS PLANT OF THE LONE STAR CEMENT CORPORATION

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Brief Description of the DALLAS, TEXAS PLANT

of

THE LONE STAR CEMENT CORPORATION

By L. J. Wheeler*

The first cement plant in this part of Texas was built in 1900 located just west of the present plant. It was organized with Texas capital and was known as the Texas Portland Cement Company. This was a dry process plant, with three kilns 6' x 60'. Later one more kiln of the same size and another 7' x 70' was added.

It is interesting to mention that in this plant was installed the first waste heat plant in the country consisting of Wicks Upright Boilers. The power plant was the conventional design of that time with Corliss engines and belt drives.

A few years later the Iola Portland Cement Company wanted to establish a plant in Texas and after prospecting around Fort Worth they decided to purchase the old Texas Portland Cement Company and the name was changed to the Iola Portland Cement Company of Texas. After a few years operation, the Iola Company abandoned this original plant and a new plant was erected on the present site and eventually again became known as the Texas Portland Cement Company.

This company went through several stages of financing and management. Various changes were made in the machinery, equipment and processing and finally in 1919 it was sold to the International Portland Cement Corporation and in 1936 the name was changed to the Lone Star Cement Corporation.

The plant was operated by dry process until 1916 when it was converted to the wet process. The quarry was originally operated by loading the rock and shale into two yard cars by hand and hauled to and from the crushing plant by mules and gravity. In 1910, a steam shovel was purchased for rock loading and in 1929, this equipment was replaced with electric shovels. In 1913, the first steam locomotives were used for transportation. These were replaced by modern 20-ton Diesel locomotives in 1944.

The quarry formation consists of an underground stratum of shale on the top of which is a 40' 50' stratum of limestone. The original quarry is now practically depleted and a new quarry was opened a few years ago from which limestone is excavated. In the early days, large bank shots were made using 2,000-3,000 lb. of dynamite at a time; however, due to the quarry operation extending closer to residential areas, small shots at more frequent intervals are put off. It is not

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necessary to blast the shale. The proportion of limestone and shale used in the process is approximately 5 to 1. During the past five or six years, in order to raise the silica content, sand has been added which is hauled to the quarry by truck and mixed in with the shale.

Until 1929, a gyratory crusher in tandem with three Jumbo Williams mills was used to crush the raw material going into storage. Since then, a No. 7260 Dixie Mogul Hammer Mill has replaced the gyratory crusher and Williams Mills. This Hammer Mill reduces the quarry run material to $-3/4$ " size in one operation.

When originally designed for dry process grinding, the raw mill equipment consisted of three 6' diam. x 60' rotary driers, eighteen 30" Griffin Mills and six tube mills varying in size from 4'-6" diam. x 16' to 5'-6" x 22'. In 1916, when the change was made to wet process, a No. 85 Smidth Kominuter was installed and three of the large tube mills were converted to wet grinding mills. In 1921, another kominuter was added and two more 5'-6" x 22' tube mills installed. Since 1934, 3' x 6' Mitchell single deck screens have been used in closed circuit with the kominuters.

When the original plant was abandoned and the new plant erected, the Kiln Department consisted of six 8'diam. x 125' kilns and subsequent changes were made from time to time increasing the size, in 1930, to 11' x 9' x 8' diam. x 275' as they are at present. Fuel oil was used for burning clinker until 1927 when low pressure gas burners were installed. In 1945, this equipment was replaced with high pressure gas burners.

Throughout the years, clinker cooling has been accomplished by rotary coolers and at present, each kiln is served by an 8' diam. x 70' rotary cooler. These are to be replaced in the near future with Fuller Inclined Grate Coolers, all of the equipment being on hand at the present time. Between the Kiln Department and Finish Mill, there are two clinker silos for storing approximately 10,000 bbls. of clinker; also one gypsum storage silo. Skipulvers and elevators are used for conveying.

The original Finish Mill equipment consisted of three 10" x 16" jaw crushers, twenty-two 30" Griffin Mills and five 5'-6" x 22'-0" tube mills. These have since been replaced by three No. 20 F. L. Smidth Unidan Mills, 7' diam. x 29', which are operated in closed circuit with three 16' Sturtevant Air Separators. Clinker and gypsum proportioning is handled through Merrick Feed-O-Weight Scales at the feed end of each of the Unidan Mills which were installed in 1944. At that time, there was also installed two No. 724 Allis-Chalmers Tube Mills for the purpose of more flexible grinding operations, grinding efficiency and the production of masonry cement. Cement from the finish mill is pumped to the silo warehouses by Fuller-Kinyon pumps.

For the production of air-entraining cement, three Hills-McCanna proportioning pumps are provided together with mixing and feed tanks for the sodium resinol solutions. The solution is discharged onto the clinker belts of the Feed-O-Weights where it is absorbed before entering the mills.

New Silo Storage and Packhouse

Until 1929, cement was stored only in a box bin warehouse having a capacity of 150,000 bbls. At that time, the first battery of cement silos was constructed having a capacity of 110,000 bbls. During the past year and a half, the new packhouse and cement silo storage has been constructed, the silos at the site of the old box bin warehouse, and the packhouse, a five-unit installation, an addition to the old packhouse. The storage silos consist of two banks of 12 silos each, 26' diam. x 81' high with conical steel bottom hoppers having a capacity of 192,000 bbls. Between the two banks of silos is a Compressor House serving the four 7" Type H2 Portable Fuller-Kinyon Pumps which deliver cement to the packhouse.

Each pump is capable of conveying 400 bbls. of cement per hour and operates automatically in accordance with the packing demand. The pipe layout is so arranged that cement can be recirculated from one bin to any other in the silo bank. Cement can also be drawn out of the side of any silo by means of a gravity spout system into railroad cars for bulk shipments which are weighed on a Buffalo Track Scale. The 8" discharge pipes from the Fuller pumps pass underground to the packhouse through a concrete tunnel to a hose cluster or switch just above the first floor of the packhouse. By means of this hose switch cement can be pumped from any pump to either of the four packing machine stations or to a bulkloading station over the north loading tracks. Each packing machine station consists of a Fuller alleviator, two circulating tanks, packer bin, elevators and conveyors and a St. Regis four-tubed Type 150-FC fully automatic packer.

Each packing machine has a capacity of 300 bbls. per hour and discharges onto a 30" wide woven wire belt. This belt can run in either direction permitting loading of cars on either side of the packhouse. Each packing unit has a Sly Dust Collector which also collects air from the cement pumped into the alleviator. The packing station located in the old portion of the warehouse is very similar to the others except there are two packing machines on a reversible double belt.

Cement from the old bank of silos is conveyed to the packing stations through a longitudinal screw conveyor running the length of the building. An Allen-Billmyre vacuum cleaning system has been provided for cleaning of floors.

New Meeting Hall and Service Building

This meeting hall has been recently completed and is provided for the purpose of holding monthly safety meetings and other general meetings for the employees. To the east of this building, there has also been recently completed, a Service Building divided into three units, one each for the white, Mexican and colored employees. Each of

these units is composed of a locker room, toilet facilities, showers and recreation room. All of the equipment is of latest design. The hot water is furnished from a central boiler room, the heating is provided through individual ceiling suspended gas-fired circulating heaters. Full occupancy and use of the Service Building will be accomplished as soon as new lockers are received.

New Office Building

Immediately west of this Meeting Hall is a new modern concrete design office building completed only a short time ago. This building serves the Mill Office organization and laboratory, and is completely air-conditioned with the exception of part of the physical laboratory which is in the basement.