

PROBLEMS FROM THE PLANT

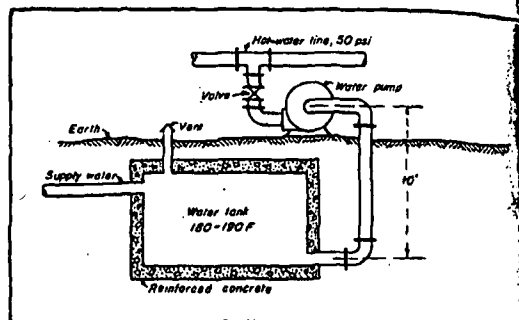
Exercise your engineering wits by submitting answers to this question, fresh from the plant. Suitable material will be paid for; answers accompanied by sketches or photographs command additional pay.

How Can We Insulate and Waterproof Concrete Tank?

WE PLAN building a hot-water tank to store water for our laundry. The tank, to be constructed of reinforced concrete, will be located underground. We intend to insulate and waterproof it.

A pump will be installed to pump water from the tank into a hot-water line that feeds the various laundry units. Pressure in this line is 50 psi. The pump will be required to lift a 10-ft static head. Normal water temperature varies between 180 and 190 F.

Can *POWER* readers suggest methods of waterproofing and insulating the tank? What type pump is best suited for this application?—AP



Readers' Answers

How Can I Save Steam From Curing Cylinders?

(File question in from Feb. issue with best answers from readers.)

To cure concrete blocks we use six cylinders, each 65 ft long and 6 ft in diameter. The blocks are stacked in the cylinders, which are then filled with live steam. The curing cycle consists of cooking for 2 hr at 12 psi, then gradually bringing pressure up to 100 psi and cooking for 4 hr. Steam is then exhausted to atmosphere in about 40 min. Only two cylinders are cooking at one time; the others are being filled or emptied. Each operation takes about 1½ hr.

Steam is generated in an *Art* boiler having 2000 sq ft of heating surface. We draw raw water from the Detroit River for feedwater. At times we do not use the feedwater pump because we cannot keep steam up with cold water going into the boiler. We tried using an injector but it wastes a lot of time.

At present we are using about 4½ tons of 12,000 Btu coal in 24 hr. Coal is fired by an underfeed stoker.

Can *POWER* readers suggest some way of using the exhaust steam so it will not

be a total loss? I thought of using it to heat feedwater but don't know how to make use of it in the short exhaust period of 40 min out of each 12 hr. Maybe some engineer knows of a similar setup that has a good method for using waste steam.—H W, chief engineer.

Preheat Cylinders With Exhaust Steam

I ASSUME *HW*'s curing cylinders are trapped. If not, they should be, so as to return condensate to a receiver or open heater.

I suggest his cylinders be piped in such a manner that when two cylinders are coming off the line the steam be exhausted over to the two cylinders going on the line. Cylinders will then be partly heated before starting.

Feedwater is probably treated, so every pound of steam returned as condensate is a saving, both in feedwater treatment and labor. William T. Mullen, Philadelphia, Pa.

Regulate Exhaust Time And Feedwater Flow

IT SEEMS as though *HW* could reduce coal consumption and improve boiler operation with a well-insulated feed-

water storage tank. It should have sufficient coils in the bottom to condense steam and pick up a greater part of the heat before dumping condensate. I mention dumping as it is unlikely that condensate would be fit for boiler feed purposes because sand and cement are picked up during the curing period when steam is in contact with cement blocks.

Just before blowing down steam from curing tanks, water in feed tank would be at a low level. When steam is released, raw water should be fed to tank and continued for duration of blowdown period.

Tank size is determined by the amount of steam released during blowdown period, having sufficient water to condense steam and transfer heat. H. E. Fontaine, Buffalo, N. Y.

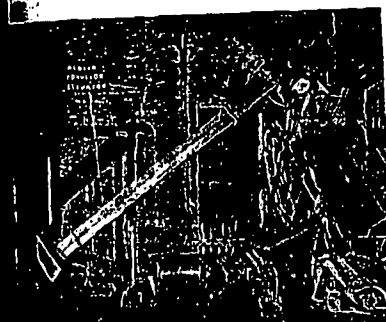
Reschedule Curing Periods

I SUGGEST THAT *HW* schedule plant operations so, on completion of the 100-lb cooking period, the steam is exhausted into another cylinder. The second cylinder has been filled, closed, and is standing ready for the warm-up and 12-lb cooking operation. This requires that he shorten the exhaust time by using larger pipes and valves. The proposed plant operation is shown on

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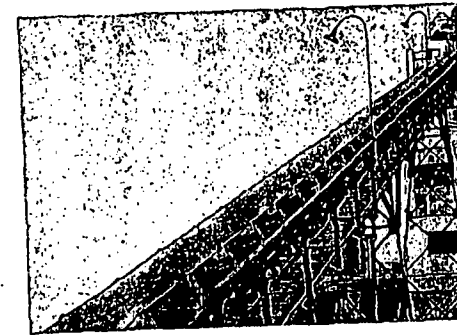
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