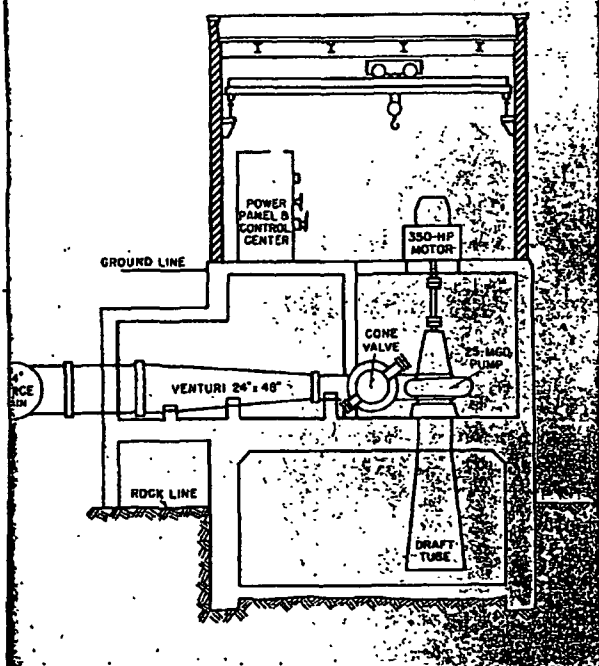




Showing arrangement of the vertical pumps in the Metzger Lake Station.

● Since 1832, when a post office was first established in Lima, Ohio, this community has shown steady, persistent growth. Water supply adequate to meet the needs of a growing city has been a problem and at times supply has lagged behind demand.

Serious water shortages, recorded at six different times, have served to spur development of additional facilities. The last such occasion occurred in January 1945, when, for a period of several weeks the reservoirs were practically empty and a restricted supply was drawn from industrial wells through emergency connections, and from an abandoned stone quarry which happened to be full of water. The emergency had arisen as the result of long continued drought, coupled with greatly increased demand of industries in war production.

Outcome of this latest emergency was the construction of a new storage reservoir and pumping station, practically doubling the existing capacity.

Lima obtains its water supply from the Ottawa River, a small stream with very small flow through most of the year, but which carries considerable water in wet seasons. Water is pumped from the river into upground storage reservoirs, and with-

drawn therefrom for treatment and distribution as needed. Three principal reservoirs now are in use. The first, Lima Lake, was constructed in 1902 and has a capacity of 430 million gal. The second, Lost Creek Reservoir, holds about 860 million gal., and dates from 1920. The newest unit was put into service in the fall of 1947. It has been named Metzger Lake in honor of the late William E. Metzger, Jr., a hero of World War II, who was awarded the Congressional Medal of Honor during the campaign in Italy. Capacity of Metzger Lake is 1200 million gal.

Each reservoir is served by a pumping station. The largest of these is, of course, the Metzger Lake Station, built to serve the new reservoir. Metzger Lake Station is equipped with three vertical centrifugal pumps, each with capacity of 25 mgd against a total head of 70 ft, and each driven by an Elliott 350-hp synchronous motor.

The pumps discharge through individual venturi meters into a 54-in. steel cylinder reinforced concrete force main leading to the reservoir about 3000 ft distant. Pump controls are either manual or automatic in relation to the elevation of water in the pump suction well and the reservoir. Automatic cone valves, in the discharge piping of each pump, open when the pump comes up to speed after starting, and, through electrical interlocks, close before current to the motor is interrupted on the stopping cycle. Speed of opening and closing is regulated to prevent building up excessive surge pressures.

Pumps are protected from entrance of debris by two mechanically cleaned bar screens. Screen rakes may be operated manually, or automatically by time clock, with an over-riding control actuated by head loss through the screen.

Final tests were conducted on the completed installation in January of this year and the operation of the system was found to be entirely satisfactory. The 25-mgd Delaval pumps delivered from 26.4 mgd to 30.0 mgd at 66-ft total head.

The rate of pumping provided will fill the new 1200-mg reservoir in about two weeks, and the three reservoirs are so interconnected that the two older reservoirs may be filled from this new source. Should either of the old pump stations fail during the short period of draw-off from the Ottawa River, the new pumping station can be used.

The complete program was under the supervision of E. E. Smith, superintendent of the Lima Water and Sewerage Departments. Jones and Henry Co., engineers, of Toledo, Ohio, prepared the plans and specifications and supervised the construction.

This aerial view shows the three reservoirs of the Lima Water Works. Left to right—Metzger Lake, Lost Creek Reservoir, and Lima Lake. New pump house for Metzger Lake is located near Lima Lake at intersection of road to Metzger Lake.