

Chapter 5 ELECTRICAL OPERATION

5.1 Electrical power

The installation is powered by QEC new power line at 208 volts 3 phase with a 250amp 3 phase breaker.

There is always a backup generator 120/208 volts 3 phase of 80 kW capacity feeding an automatic transfer switch ready to start , in case of a QEC Power failure.

The 25 HP main power pumps are fed at 208 volts 3 phase.

Refer to As-built Plans in Chapter 1, for more details.

5.2 Submersible Pumps

A selector switch on control panel in the building allows pump selection. Two independent intakes with their own water reservoirs are available as water source. Pushing the start button located on the water loading arm, activates the selected 25 HP pump. Only one pump at a time can run in normal condition.

In case of “High Flow Demand” (Fire in the Hamlet) the two submersible pumps work at the same time to provide maximum flow to loading arm.

Automatic motorised isolating valve assures maximum flow to the loading arm preventing water to back flow in the standby pump.

The selected pump can be stopped using the "Truck Fill Stop" button on the start/stop at arm level and or at ground level in a second station.

At all times, pumps can be started inside building directly on their respective starter by use of a selector mounted directly on the starter box. Turn the selector and manually start the pump. Return to off position or auto stop the pump.

For more information, refer to [Chapter 16 & Chapter 28 & Chapter 37](#).

5.3 Heat Trace

Heat trace system is installed on each water intake. Heat trace and their respective control panel for pipe#1 and pipe #2 was tested and found conform to design. Freezing protection is more than adequate. Spare tubing is available for heat trace running.



Each HTC to control: two heat trace cables and three RTD temperature sensors. There are three sensors per intake pipe: at 15 meters and at 30 meters.

One control panel per intake controls and supervises heat trace operations.

In summary, each heat trace control panel keeps the following tasks under control;

- a) To be code conform ground fault protection must always be guaranteed. This control monitors continuously leaks current to ground and gives an alarm on such a condition and cuts the electric circuit to the faulty heat trace.
- b) Temperature control inside pump casing. With its probe inserted in the insulated intake casing the controller turns the heat trace on and off to adjust with set point.
- c) Control always supervises the correct range of operation; following the alarm set point of operation given at installation. (For example, under heating demand if the controller detects no corresponding electrical current. This is a fault condition and controls fall in alarm condition).
- d) For more information, refer to [Chapter 38](#).