

OPERATIONAL CONTINUITY OF THE DRINKING WATER PLANT

GESGAPEGIAG



In an emergency, first call Emergency Services at ISC at 418-563-5499, the local Emergency Measures Coordinator (Franklin Condo 418-392-1475), your Circuit Rider (M. Marc LeMay 418-882-7358) and your regional First Nations and Inuit Health Branch Officer (M. Edward Findikoglu 343-542-3091), or your local Community Based Water Monitor (Valerie Condo at the Health Clinic) so that they can guide you in your communications, in the way you work and precautions to take.

***FOR ASSISTANCE CALL
MARC LEMAY
418-882-7358***

PRINCIPLE OF OPERATION

- There is two (2) wells, each containing one (1) submersible pump that supplies raw water to the reservoirs.
- Raw water is chlorinated using a diluted solution of Sodium Hypochlorite (1,33 %) before being stored in underground reservoirs
- Three (3) distribution pumps supply the community with treated water
- One (1) diesel motor driven emergency pump insures distribution during a power outage and is also used as a fire pump
- All systems work automatically but if problems arise, it's possible to run each component manually

THIS MANUAL IS DESIGNED TO GIVE YOU A SIMPLIFIED STEP BT STEP GUIDE ON HOW TO RUN THE PLANT IN CASE OF AN EMERGENCY AND NO OPERATOR IS AVAILABLE.

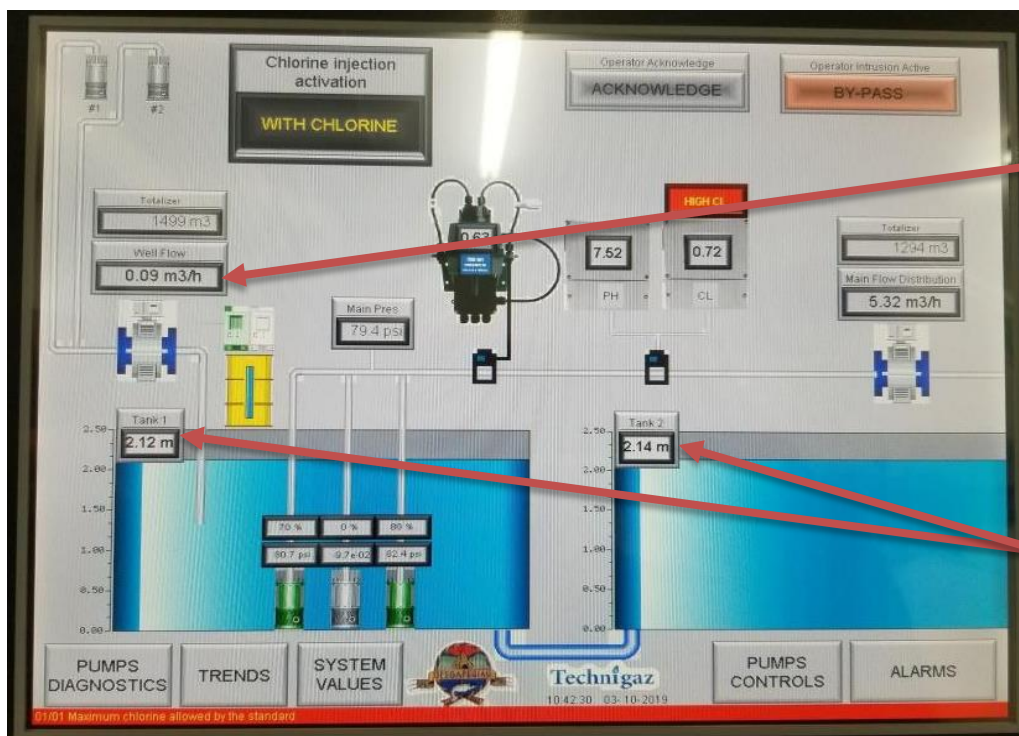
- There are two (2) wells. Well n° 2 or Old well is located on Indian Drive at about 100 m from the plant. Well n° 1 or new well is located under the plant building.



Well n° 1

Well n° 2

- One (1) or two (2) well pumps can run at a time but we usually run both well pumps simultaneously. The well pumps come on when the level in the reservoirs reaches (while emptying) **2,00 m** and shut off when the level in the reservoirs reaches (while filling) **2,30 m**. With both well pumps on the raw water flow is usually around **13,5 m³/h**
- You can monitor the level in the reservoirs and the raw water flows entering the reservoirs on the HMI's "**MAIN**" screen



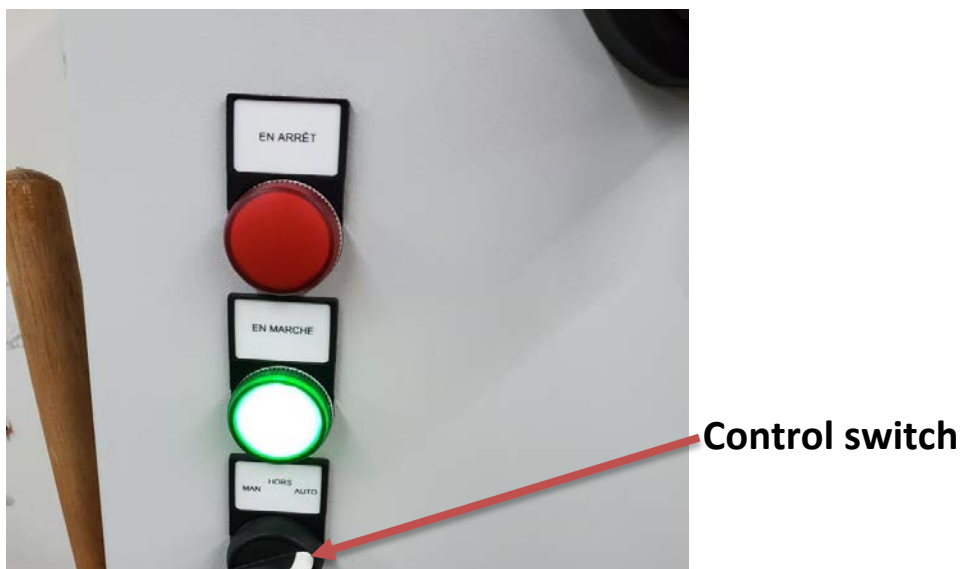
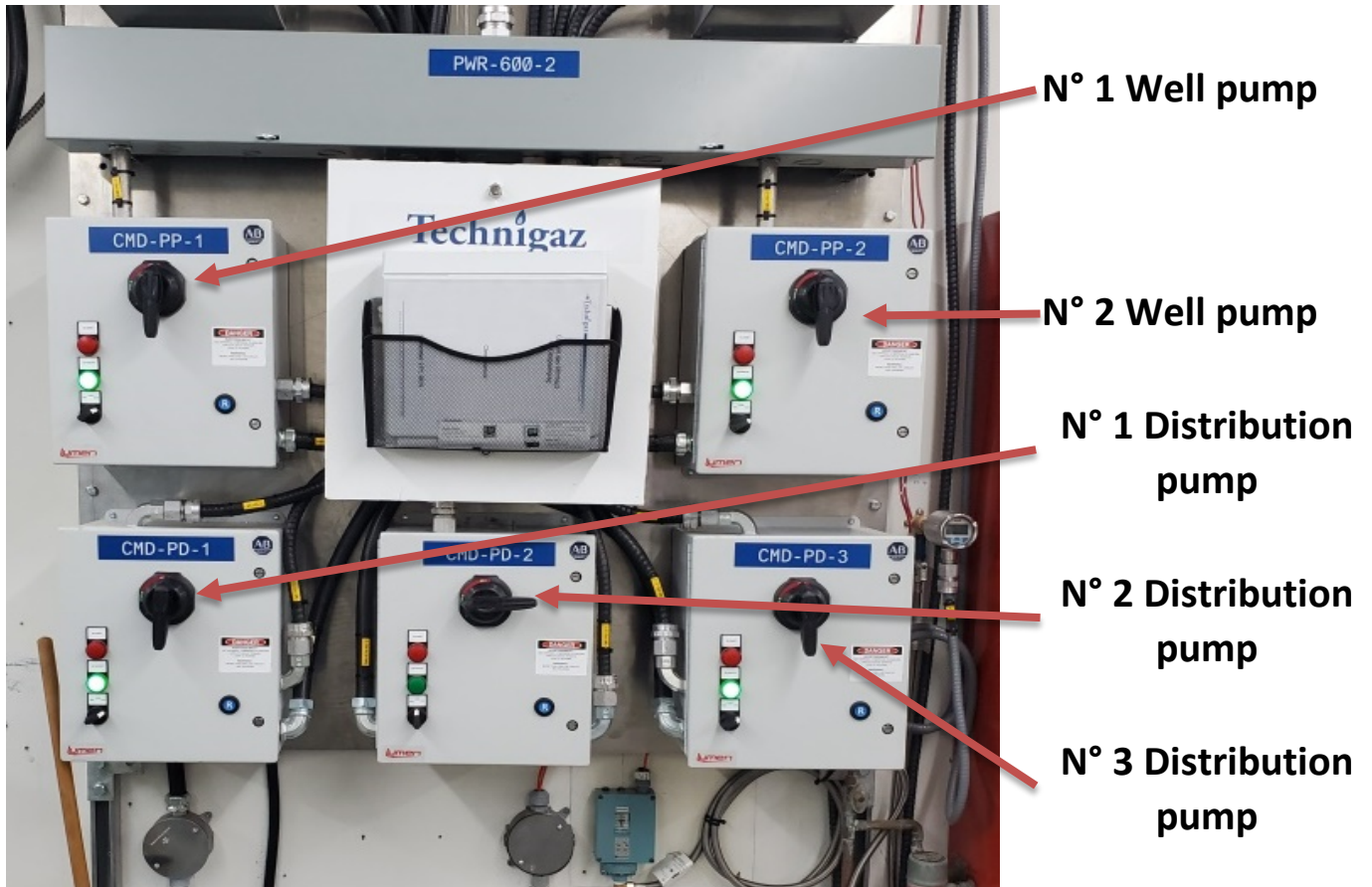
Raw water flow

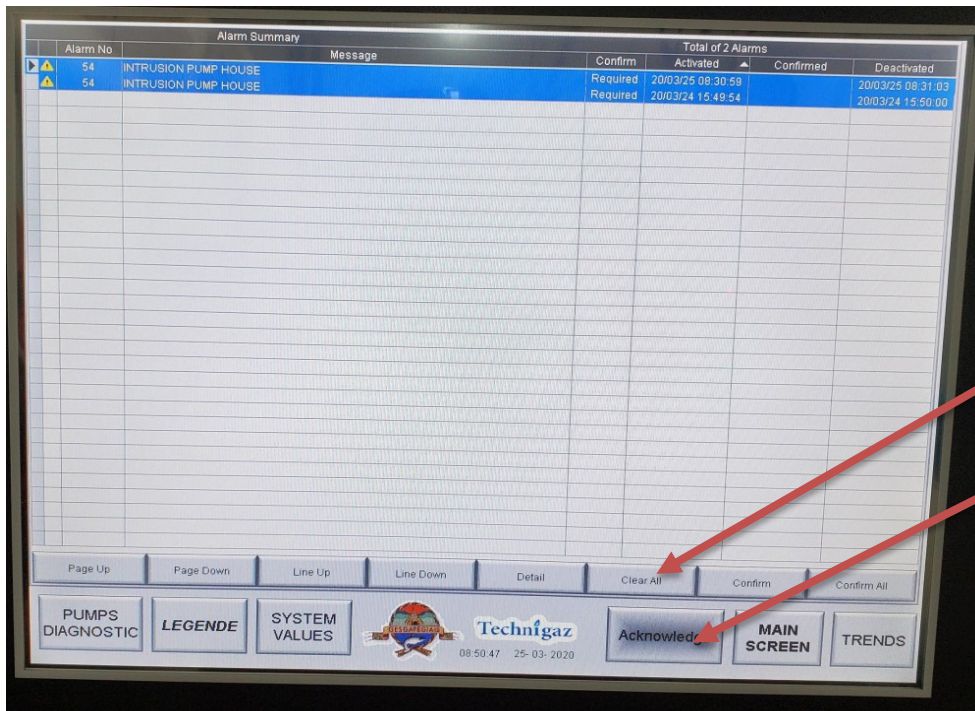
Reservoir levels

- If the level in the reservoirs is below **2,00 m** and the well pumps are not running, something is wrong and you have to troubleshoot the problem or run the well pumps on manual. If the level in the reservoirs is above **2,30 m** and a well pumps are still running, something is wrong and you must troubleshoot the problem or run the pumps on manual
- To run the well pumps on manual you must go to the control panel located on the south wall and turn the selector switch for each well pump to "**MAN**". If you run the well pumps on manual, you must monitor the level in the reservoirs so that they remain as much as possible between **2,00 m** and **2,30**

m

- To return the well pumps back to auto, you must turn both switches to "HORS", go to the HMI, access the "ALARM" page, **Acknowledge** the alarms and **Clear all** alarms then back to the control panel and turn both switches to "AUTO"





2- Clear all

1-Acknowledge

- When the well pumps are running, a chlorine pump should be running also. Sodium Hypochlorite is only dosed in the raw water when a well pump is running. The metering pumps are located in the closet located on the west facing wall near the entrance.

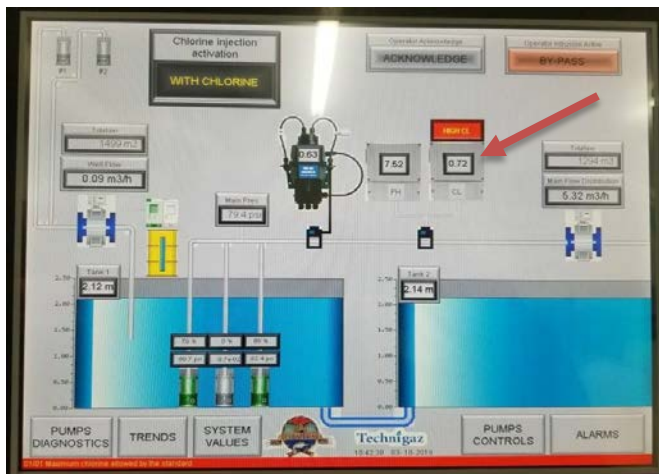




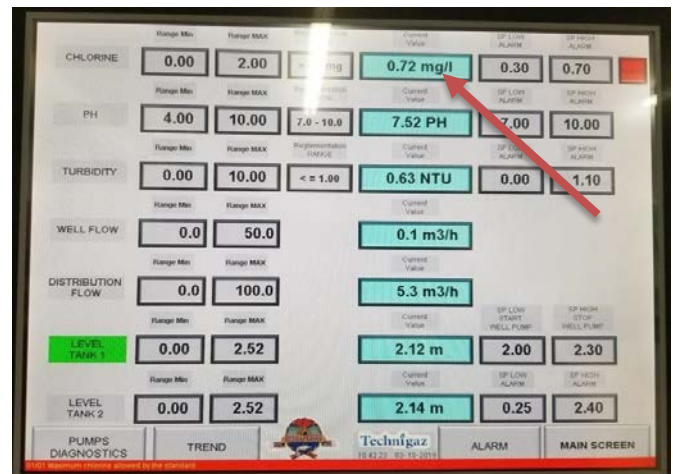
Chlorine room (closet)

Chlorine metering pump

You must maintain the concentration of free chlorine between **0,3 mg/L** and **1,0 mg/L**. You can monitor the free chlorine concentration on the HMI's "MAIN" page, the "SYSTEM VALUES" page or directly on the online analyzer



Main screen



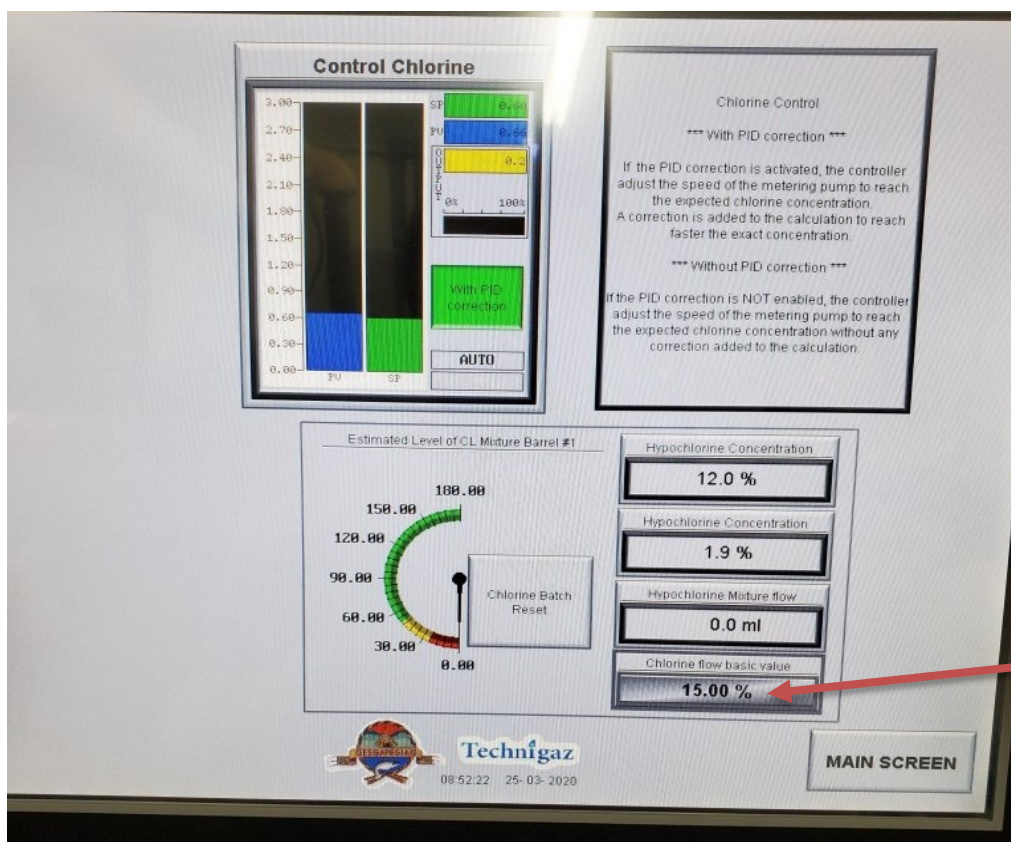
System values screen





Free chlorine online analyzer (maintain between 0,03 mg/L and 1,0 mg/L)

To adjust the dosing rate you must go to the **"CONTROL CHLORINE"** page and change the **"Chlorine flow basic value"**. To increase the dosing rate, increase the **"Chlorine flow basic value" %**, to decrease the dosing rate, decrease the **"Chlorine flow basic value" %**. Make small adjustments of **5%**. Always monitor the concentration and adjust as needed. The concentration usually stays between the set points and adjustments are rarely needed



Chlorine dosing rate adjustment

To run the metering pumps manually you must hold the **two arrows** on top of the metering pump at the same time for **three (3) seconds**. the pump will

then enter the manual mode at a speed of **100 %**. Use **down arrows** to make an initial adjustment of the speed to **20 %**, then make corrections according to analyzer readings. Don't forget we want to maintain the concentration of free chlorine between **0,3 mg/L** and **1,0 mg/L**

WARNING ! GLOVES, EYE PROTECTION AND A RUBBER BIB MUST BE WORN WHILE HANDLING SODIUM HYPOCHLORITE (CHLORINE)

- On a regular basis you will have to make a batch of diluted Sodium Hypochlorite. When the level of the solution is low you must top up the solution tub to **180 liters**

Hose to add water



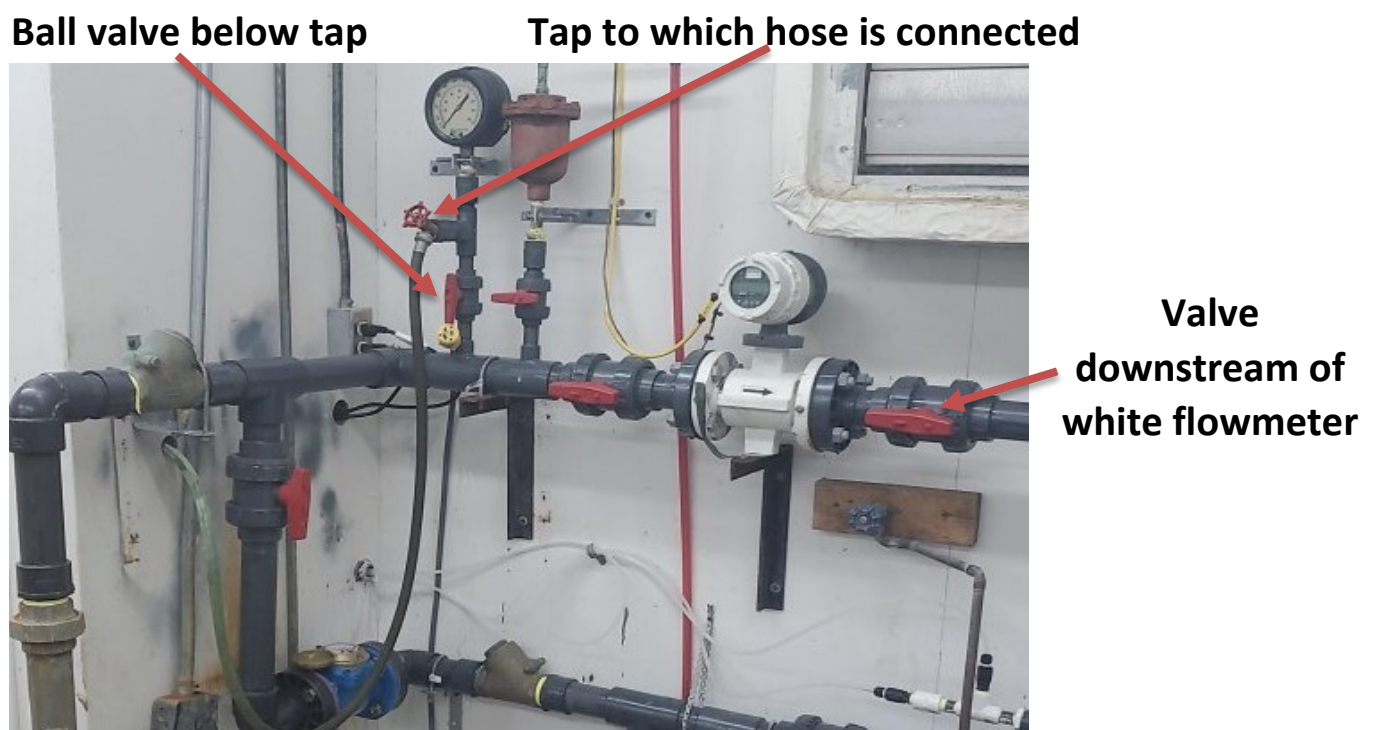
180 liters solution tub



12 % Sodium Hypochlorite

- The concentration inside the tub is **1,33 %**. Therefore, you must add **20 liters** of **12% Sodium Hypochlorite** to **160 liters** of water for a total of **180 liters** of solution. Clean the tub between solutions so that you reduce the risk of blocking the dosing tube with calcium deposits.

Since we use raw water to fill the solution tub, a well pump must be on. If the pumps are already on, you must close the valve downstream (after) the white flowmeter, open ball valve below tap for hose and open the tap to which the hose is connected. Once finished, close the tap, ball valve and re-open the valve downstream of the flowmeter. If the well pumps are not on. You must turn them on manually and once done use the procedure to put them back into automatic. To return the well pumps back to auto, you must turn both switches to "**HORS**", go to the HMI, access the "**ALARM**" page, Acknowledge the alarms and Clear all alarms then back to the control panel and turn both switches to "**AUTO**"





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If the metering pumps no longer work, you must manually dose the chlorine directly into the reservoirs. Start with pouring **500 mL** of **12%** Sodium Hypochlorite in each reservoir **once a day**. Make adjustments according to the free chlorine concentrations read on the analyzer. Don't forget we want to maintain the concentration of free chlorine between **0,3 mg/L** and **1,0 mg/L**

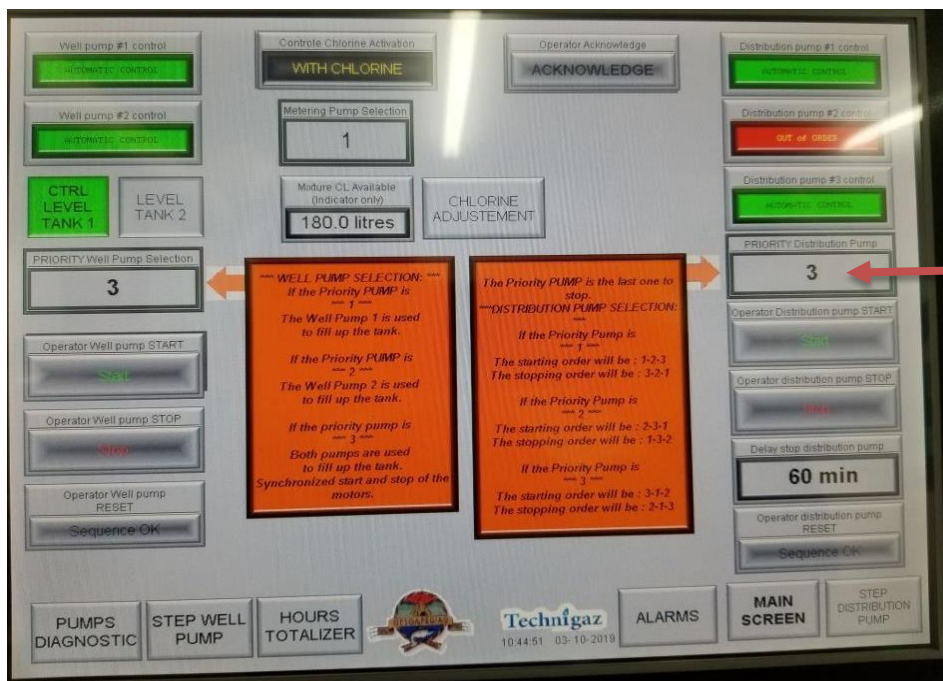


Reservoir A



Reservoir B

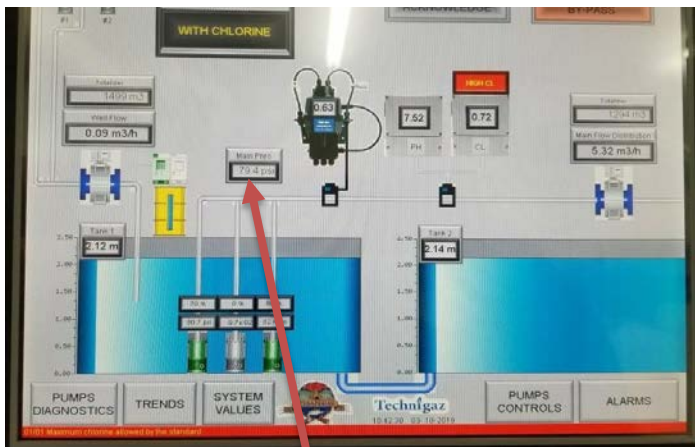
- Three (3) submersible distribution pumps supply water to the community. They are controlled automatically depending on which pump is set as the priority pump on the HMI. You can set the priority pump on the HMI's "**PUMP CONTROLS**" page. Usually we operate with **pump 3** being the **priority pump**.



Pump 3 priority

- Distribution pressure can vary but should be around **80 psi**. You can monitor the pressure on the HMI's "**MAIN**" screen, the analogue pressure gauge installed on the main pipe leaving the plant or the digital pressure gauge located on the Fire pump control panel.





Distribution pressure on MHI's
"MAIN" page



Distribution pressure on
distribution main line



Distribution pressure near
Fire pump control panel

- If your unable to run the pumps automatically you can run them manually. To do so you must go to the control panel located on south wall of the plant. Place switch on "**MAN**". ***We recommend running pumps 1 and 3.***
- To return the distribution pumps back to auto, you must turn both switches to "**HORS**", go to the HMI, access the "**ALARM**" page, **Acknowledge** the alarms and **Clear all** alarms then back to the control panel and turn both switches to "**AUTO**"

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FOR ASSISTANCE CALL

MARC LEMAY

418-882-7358