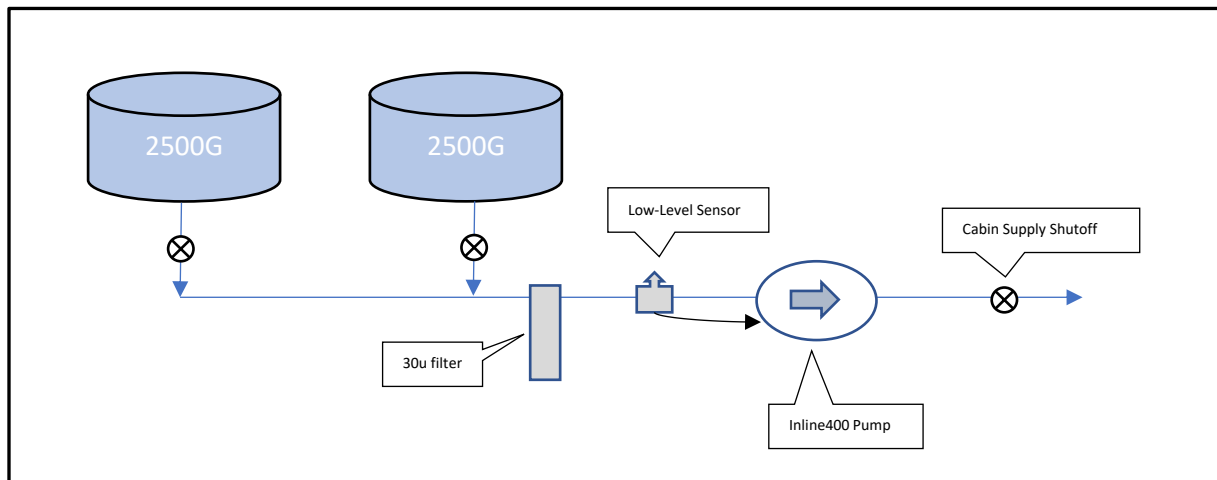




Clearlake Potable Water Operations

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The potable water system at our Clearlake cabin is centered around two 2500G storage tanks. The tanks are normally operated in parallel, and both filled and emptied through the bottom port. Each tank has a shutoff valve. During normal operation, this valve is always open. One or both can be closed during system servicing.

Tank water enters a 20u filter, before being pressurized to app 50PSI, and is piped into cabin. A cabin supply shutoff valve is located at cabin.

The pump requires 120VAC for operation. The pump must never be allowed to run dry and is protected by a Low-Water-Level sensor which is located immediately adjacent to pump.

System Startup Procedure

To turn-on potable water system

- 1) Check tank water level. Best done by finger tapping on tank-side.
Water level must be more than 10" from tank bottom to operate.
- 2) Read and record flowmeter totalizer #2.
- 3) Open cabin water shutoff valve #3.
- 4) Turn-on pump power at #1.



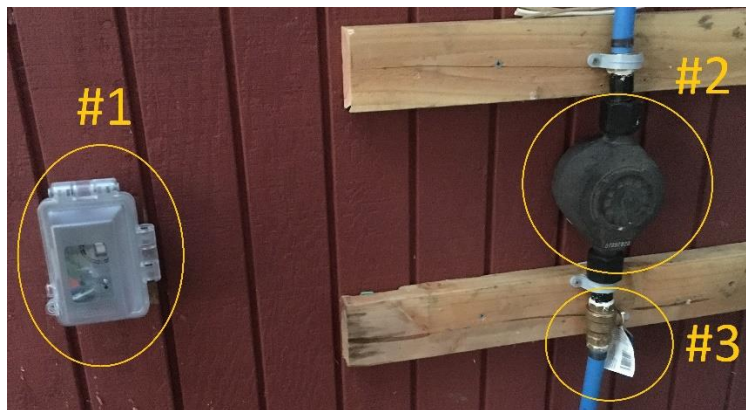
To turn-on hot water system for bathrooms; hot-water system should always be powered...

System Shutdown Procedure

Turn-off hot water system for bathrooms; the system has an automatic hot-water shutoff. No need for power-off!

Turn-off potable water

- 1) Read and record flowmeter totalizer #2
- 2) Close cabin water shutoff valve #3
- 3) Turn-off pump #1



System Fill

We have an account with an account with

- 1) Action Sanitary in Lower Lake, 707-994-5068. Call for delivery.
- 2) HLM Water in Lakeport, 707-485-4000. SMS for delivery.

During summertime they can be busy and require 48hr notice. Delivery instructions; YSC, 9325 Bass Rd.

Their truck will hold 3,000 gallons. Weekday delivery is \$350/ea. So, don't order water until tank level is at 2,000 or below.

Weekend delivery depends on them being able to find a willing driver. Recently we paid \$500 for a Sunday delivery.

NOTE; the tank level gauge on tank side is for one tank. Thus, if you read 1,200-gallon level, you have $1,200 * 2 \Rightarrow 2,400$ gallons!

For 2019 season, the truck must be able to access water tanks in parking lot!

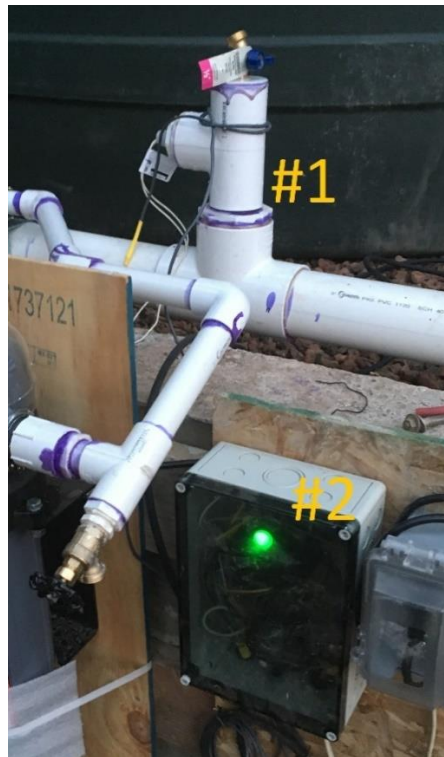


System Trouble Shooting

IMPORTANT; IF THERE'S NO CABIN WATER PRESSURE, TURN-OFF HOT-WATER CIRCULATION PUMP IMMEDIATELY.

Check water level sensor LED (#2) in control panel to the right of the pump.

- If Green, water level is OK, and pump should be energized. Check shutoff valve at cabin (see startup procedure).
- If Red, tank water level is low, or air entered feed. Open purge valve gently (#1) until water comes out. LED should turn Green and pump will resume operation within 5 seconds.
- If LED is OFF, power is absent. Check system ON/OFF switch at cabin (startup procedure), or circuit breaker adjacent to water heaters.



Periodic Chlorination Check

<https://www.cdc.gov/safewater/chlorine-residual-testing.html>

Delivered water will contain enough free chlorine to maintain clean water for a period. Thus, for as long as large amounts of water are delivered and consumed, free chlorination check should not be necessary. However, it is at times of inactivity when chlorination levels must be checked.

The following free chlorination level MUST always be maintained: 0.2 to 2.0 PPM. Note; 1.0PPM is same as 1.0mg/L.

When adding chlorine, the following must be met:

- At 30 minutes after the addition of sodium hypochlorite there should be no more than 2.0 PPM of free chlorine present (this ensures the water does not have an unpleasant taste or odor).
- At 24 hours after the addition of sodium hypochlorite, minimum free chlorine present must be 0.5 PPM or higher.

To maintain the cistern, add 1 tablespoon of 5%-8.25% unscented liquid household bleach for every 100 gallons of water in the cisterns.

Tank Level (Gal)	Total to be added (ml)	Eqv in (US) cups
500	75	1/3
1000	150	2/3
1500	225	1
2000	300	1-1/3
3000	450	2
4000	500	2-1/4
5000	650	2-3/4

Table 1; Maintaining Tank Chlorine

To measure free chlorine, use a system like this or similar:

<https://www.hach.com/chlorine-free-total-color-disc-test-kit-model-cn-66/product-details?id=7640219519&callback=qs>

End of season chlorine addition: add double maintenance dose as prescribed in Table 1.

Filter Maintenance

We use a Culligan S1A 20u filter located immediately before the pressure pump – adjacent to the tanks. The filter service life is recommended to be 4 months or 16,000 gallons, whichever comes first. A filter two-pack can be purchased at Amazon or other online retailers.

Seasonal Maintenance

Before summer season, the tanks must be inspected and if necessary cleaned. Use an 8ft ladder to gain access to the man-hole cover on top. Adjacent to the western tank is a brush, stored in an orange bucket, and pole – to be used to clean inside of tank walls. Another cleaning method is to use pressure washer – which can be connected to faucet immediately to right of pump.

Through clever use of tank valves and Inline pump, water can be evacuated from one tank to the other. After tank cleaning, the tank content is dumped into parking lot through fill port.

The pre-pump cartridge filter must be replaced semi-annually. Ideally during a late spring work, and get-cabin-winter-ready, weekend. Get them from Vitasalus;

<http://www.vitasalus.net/20-micron-wound-pre-filter-2-5-x-9-75-4-pack-of-filters>

To replace filter, both tanks must be shut-off, and manifold drained. Draining is best done via fill port and dumped into parking lot.

