

Site Savings Guide

WALKING YOUR SYSTEM FOR ENERGY SAVINGS



NON-POTABLE
WATER

Sometimes energy savings opportunities are staring right at us – we just don't recognize them! Take this guide with you on a tour of your non-potable / reclaim water system to help you see opportunities. And remember - **W3 isn't free!**

How much energy is consumed?

Average Flow Rate:	gpm
Average Discharge Pressure:	psi
Motor size:	hp
VFD used?	
Number of pumps:	
Number operating typically:	
What is the typical pressure drop across filter if used?	

1 Pump Line-up & System Checks

Goal is to operate at the lowest possible pressure at the pump that gets the job done in the field.

Can you lower the pressure seasonally or for part of each day?

Lower flows at use points preserve pressure in the system and save energy at the pumps.

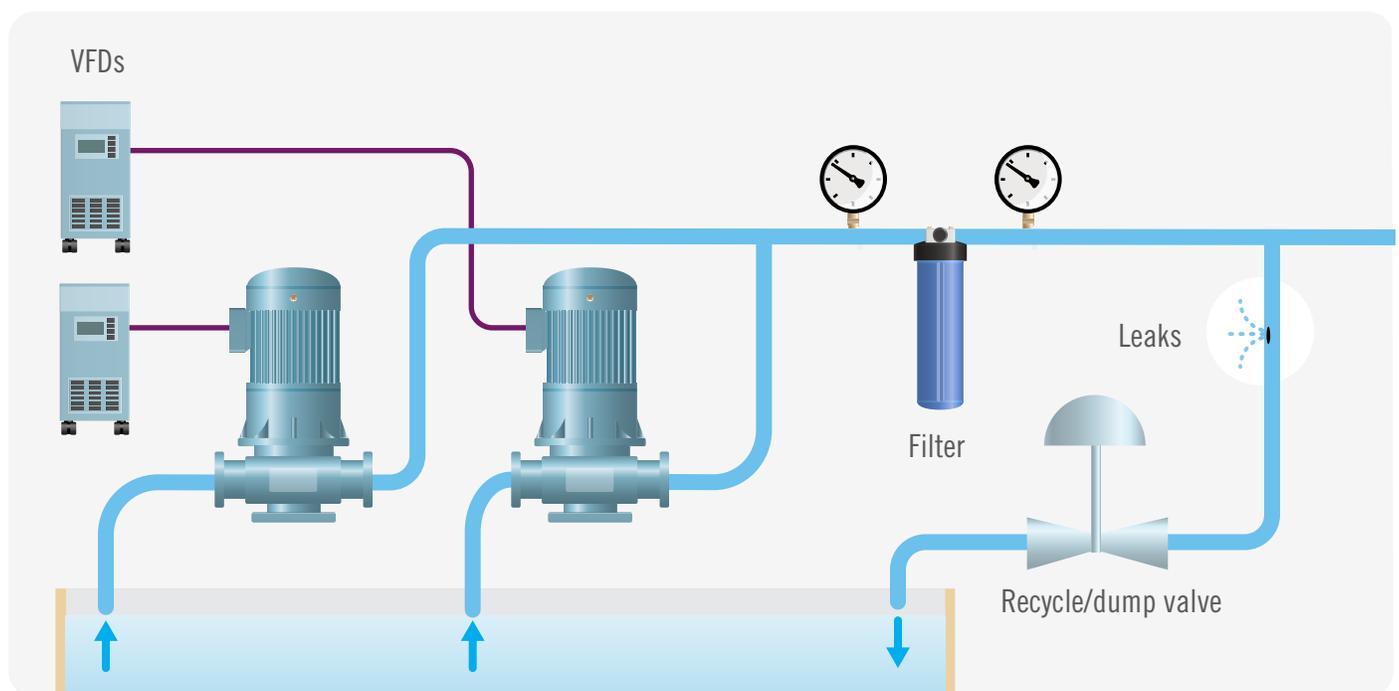
Find and fix all the leaks out there!

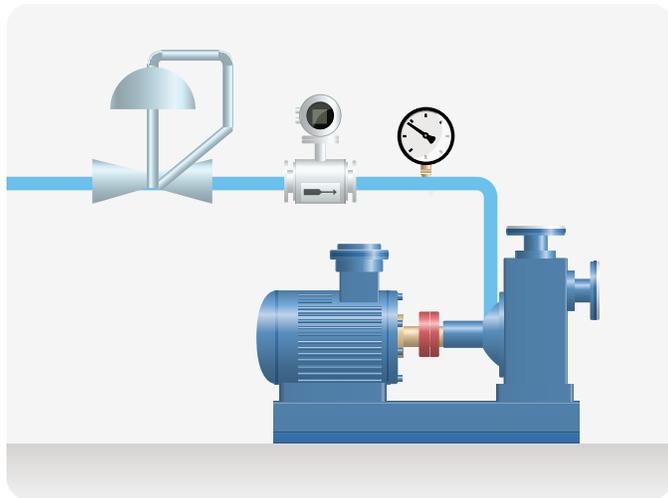
Do you use a dump valve?
Right size your pumps or add a VFD.

Is the most efficient pump used at each flow rate?

Do additional pumps increase the flow, or do they stall each other?

Dirty filters waste pressure. Clean them regularly.
Add parallel or larger filters to avoid pressure drops.



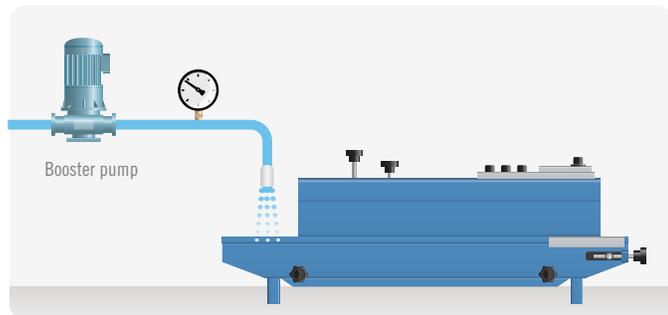


2 Seal Water

Adjust to minimum flow required.

Add solenoid so seal water only runs when pump operates.

Check PRV for proper operation.
Replace/rebuild as needed.



3 Solids Handling / Headworks Sprays

Headworks and solids handling equipment often drive system pressure. Booster pumps can be used to boost only the water needed by the equipment.

Make sure spray cycle triggers and runtimes are correct; reduce to minimum needed for reliable operation.

Avoid large "trough flushing" flows with non-pot; use grit classifier overflow water or other gravity source.

Select and install appropriate nozzles and orient them to maximize effectiveness.

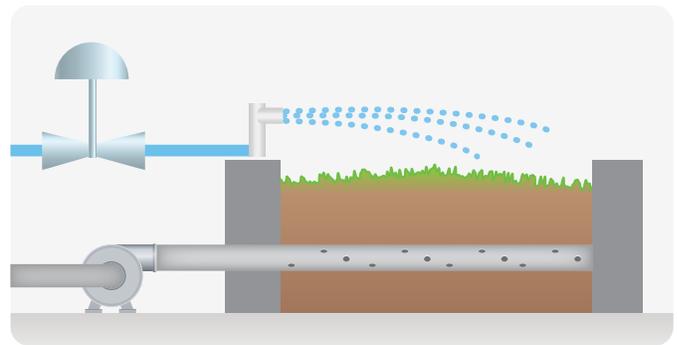
4 Bio Filter / Yard Irrigation

Adjust to minimum flow required.

Add moisture sensor in biofilter media; wet only as needed.

Ensure sprinkler / spray is adjusted to water the target and avoid waste.

Add timer to reduce run time.

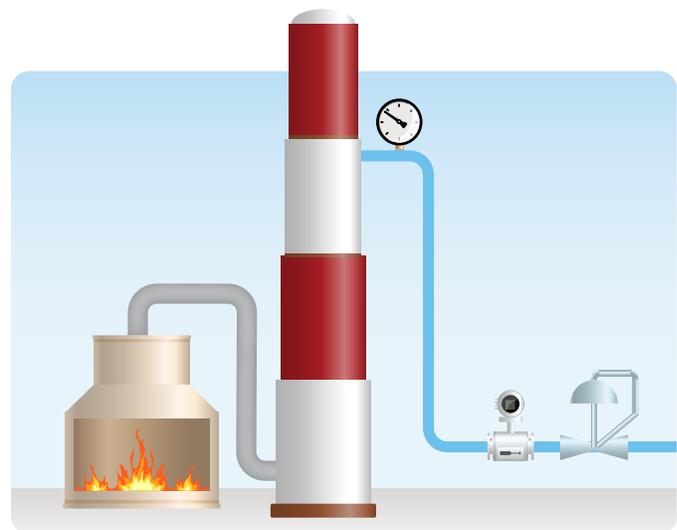


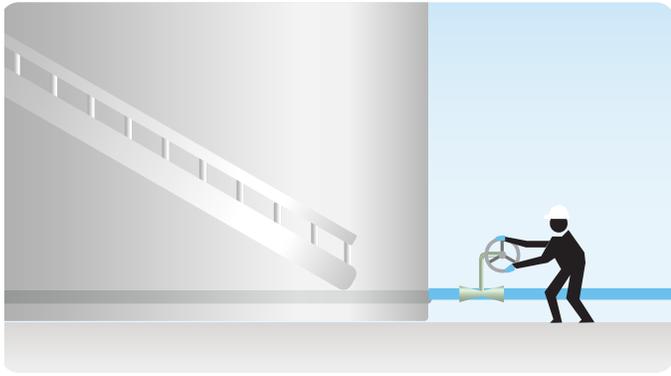
5 Pollution Control

Emission monitoring instruments and scrubbers can require high-volumes and high pressure. A small booster pump can eliminate having to run full system at high pressure.

Reduce discharge pressure & flow to meet need.

Add controls so that water shuts off if incinerator or source of emissions is shut off.





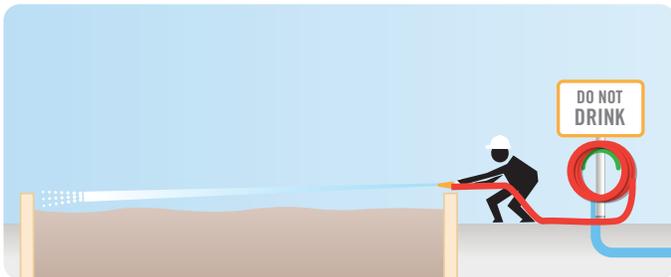
6 Tank Fill

A portable, low-head, high-flow pump can be used in lieu of non-pot system water to fill tanks.

Fill tanks when other uses of non-pot are low.

Utilize temporary pressure boost controls to compensate for fill; return system to lower pressure when fill is complete.

Consider equalizing tanks first through drains, then top with non-pot.



7 Hose Bibs / Washdown

Avoid “just running” hoses. If there is a constant area of concern, set up spray system or fix the problem.

All washdown hoses need nozzles and hand valves to be effective.

Add pressure boost controls to boost pressure during washdown activities and return to low pressure automatically.

If plant is not staffed at night, then no washdown will happen, and high pressure is not needed. Turn pressure up during day shift, turn down at end of day.

Disable/disconnect heat trace systems after winter.

8 Odor Control

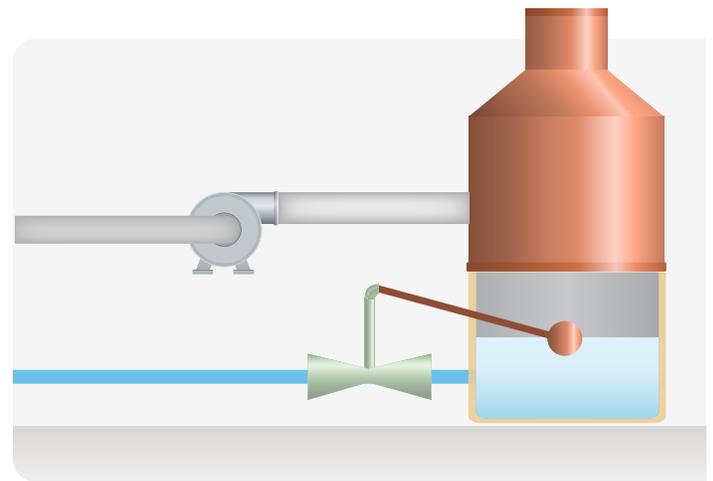
Install float valve or other level control device rather than constant overflow for odor scrubber make up water.

No reason for high pressure water here; upsize pipe if the top-off time is not fast enough or reduce depth between high and low level setpoints.

While you’re here: are the scrubber pumps throttled? Consider resizing or adding VFD.

Is the scrubber fan dampered?

Resheave to reduce flow and open damper.

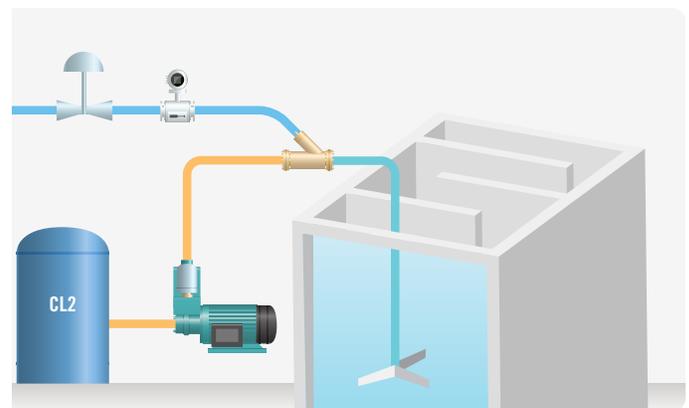


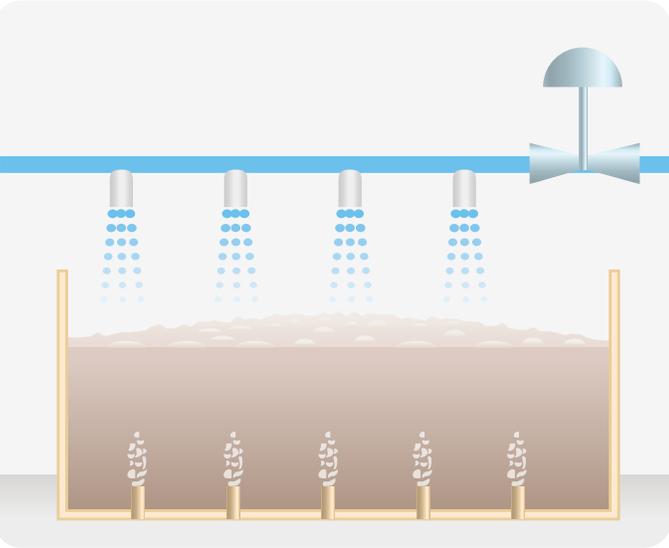
9 Carry Water

Carry water can be low, low pressure. Consider a separate, low-head pump.

Monitor flowrate and adjust to match the CL2 solution concentration used.

Would discharge manifold eliminate need for flash mixer?





10 Foam Suppression (at channels, tanks, etc.)

Foam suppression can be effective with very little water if the right nozzles are used.

Consider running foam suppression on solenoids or auto cycle valves, half of the system at a time (e.g. north side of channel, then south side).

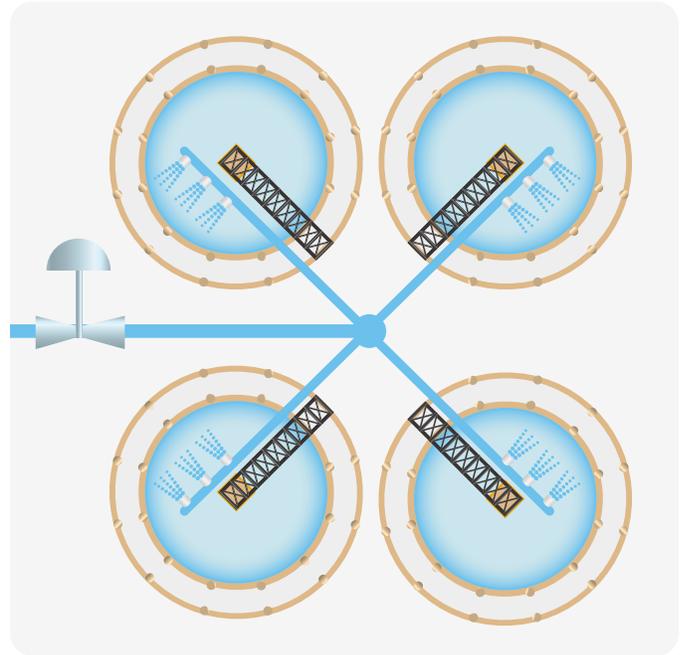
Blank off nozzles that aren't doing any useful work. Lower flow = lower energy!

11 Clarifier Scum Sprays

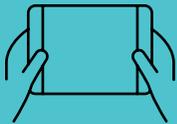
Clarifier sprays can run a few minutes every hour and do the job. Add solenoid valves and stagger the cycles so only one clarifier spray bar runs at a time.

Put spray bar control valves where operators can easily reach and adjust.

Reduce flows to minimum needed.



What did you find?



- 1 write down what you find
- 2 take a photo with your phone
- 3 send to your coach

FACILITY _____

YOUR NAME _____

SAVINGS OPPORTUNITIES:
