

Reverse Osmosis (RO) Shutdown and Cleaning Procedures

The following procedures describe how {name of sugarhouse} shuts down and cleans the RO equipment.

Concentrate Flush and Short Rinse

- Run the Concentrate Flush within 30 minutes after RO finishes concentrating sap and shuts off. This is a rinse cycle that uses filtrate water to flush the remaining concentrate and sugar from the membranes. You can send the output from the concentrate flush to the concentrate tank or back into the raw sap tank. *If you consider the concentrate flush to be finished when the output has a lower brix reading than the raw sap, add that in here.* Follow the instructions on the RO panel or in the RO manual to set the valves on the RO.
- Immediately after the Concentrate Flush, run a Short Rinse for an additional 10-12 minutes. The Short Rinse continues to flush the membranes, but the output from the short rinse is discarded via the output drain since it is just water.

Wash

The Wash is a hot water wash of the membranes. You can also add RO soap to the wash cycle if you do performance monitoring on your RO machine and have determined that it is time for a soap wash.

- Change the pre-filters on the RO to use the wash filters.
- Run the Wash cycle. The wash cycle fills a wash tank with filtrate water and then circulates that water through the membranes until it reaches a high temperature of {112 degrees} and automatically shuts off. Follow the instructions on the RO panel or in the RO manual to set the valves on the RO for a wash cycle.
- *If you are doing a chemical wash and adding soap:* When the water temperature reaches {77 degrees} then add {amount of chemical} of {Chemical name from the manufacturer}. **Wear PPE when adding this chemical.** Chemical wash should be 11 – 11.5 PH. Use PH paper to test.
- When the wash cycle has ended, *if you were doing a chemical wash:* Add twice as much baking soda as the chemical was added. Mix the baking soda into the wash tank before draining the water. This will neutralize the chemical wash.

Long Rinse

- Run the Long Rinse after the wash cycle. The Long Rinse rinses the membranes, and discards the rinse water. Follow the instructions on the RO panel or in the RO manual to set the valves on the RO for a long rinse cycle

The following procedures describe how {name of sugarhouse} sets up the RO for concentrating sap the next day.

Concentrate Sap

- Change the pre-filters on the RO to use the clean sap filters before concentrating sap.

- Run the Concentrate cycle. The concentrate cycle removes water from the raw sap and produces a concentrated sap with a higher brix. Follow the instructions on the RO panel or in the RO manual to set the valves on the RO for the concentrate cycle.