University of California, Berkeley

OFFICE OF LABORATORY ANIMAL CARE

Working Instructions

WIN Number:	622	Edstrom Watering System	Revision #:	0
			Supersedes:	0

Date Effective: 4/16/25

Author(s):	Amanda Larson	**Sign:**	**Date:** 4-24-25
	Satori Le	**Sign:**	**Date:** 4/24/25
Facility Manager:	Vincent Flournoy	**Sign:** Vincent Flournoy	**Date:** 4/24/25

Procedures

1. Check the chlorine solution tank weekly, or more often as deemed necessary by the Facility Supervisor.

2. When the water level in the solution tank drops below the twenty (20) gallon line, add 750-1000mL of bleach to the solution tank.
   a. The amount of bleach needed will vary and depend on the current concentration of chlorine in the tank. Only use pure bleach with no added detergents or cleansers.

3. Fill the solution tank to the 40 gallon line with RO water.
   a. This aids with mixing the bleach solution.

4. While the RO machine is making water, zero the test meter, wait five (5) minutes, then test the free chlorine levels using the approved test kit.
    a. Refer to the steps outlined below for more information.

Zeroing the Test Meter

1. Fill the test vial with water from the sample port above the solution tank to the 5ml line. 2. Wipe the sides of the vial thoroughly, ensuring there is no discoloration, moisture, and/or marks on the outside of the vial.	
3. Place the cap onto the vial. 4. Place the vial into the test meter, ensuring the triangle shapes are lined up. 5. Place the cap on top of the vial.	
6. Press the power button then the blue button to zero the test meter out.	

Testing Free Chlorine

1. Zero the test meter prior to testing for free chlorine. 2. Fill the test vial with water from the sample port above the solution tank to the 5ml line.	

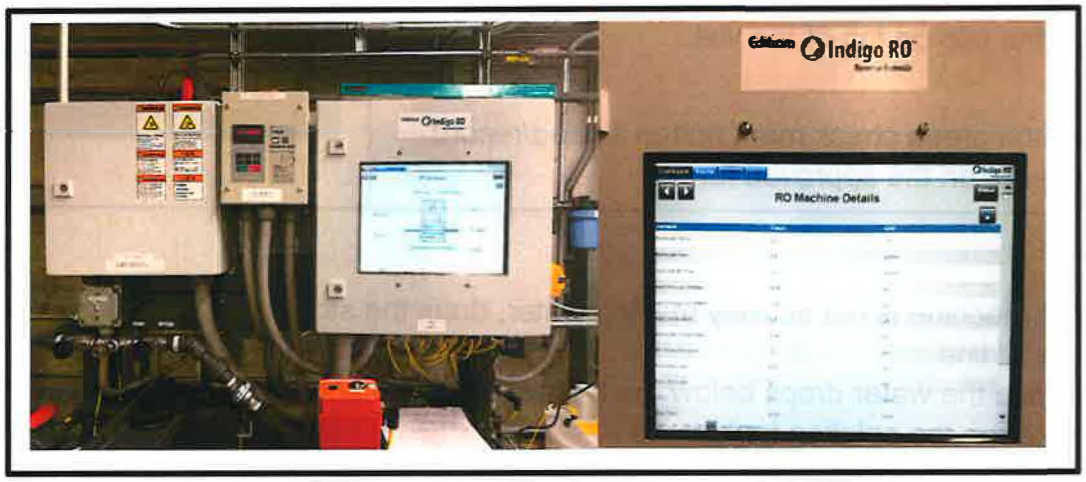
3. Empty 2 packets of Free Chlorine Reagent into the vial with the water sample. 4. Invert the vial 10 times to mix the solution. 5. Wipe the sides of the vial thoroughly, ensuring there is no discoloration, moisture, or marks on the outside of the vial.	
6. Place the vial into the test meter, ensuring the diamond/triangle shapes are lined up. 7. Place the cap on top of the vial. 8. Press the green check mark button & read/record the results on the approved form.	

5. If the RO machine is not actively making water, drain the storage tank until the water level falls below the fill line.
    a. Once the water drops below the fill line, the RO machine will begin pumping water through the solution tank.

6. If the solution tank is not between 2-5 ppm free chlorine refer to the steps below:
    a. Below two (2) ppm free chlorine:
        - Add chlorine bleach to the chlorine solution tank and mix the solution into the tank.
            Note: The amount of bleach needed will vary and depend on the current concentration of chlorine in the tank. Start by adding 250mL of bleach.
        - While the RO machine is making water, wait five (5) minutes, then take a water sample from the sample valve on the permeate line and measure the chlorine level using the approved test kit.
        - If levels are still under two (2) ppm, repeat steps 1 & 2.
    b. Above five (5) ppm free chlorine:
        - Add RO water to the chlorine solution tank and mix tank
        - While RO machine is making water, wait five (5) minutes then take a water sample from the sample valve on the permeate line and measure chlorine level using the approved test kit.
        - If levels are still above five (5) ppm, repeat steps 1 & 2.

7. Record Edstrom data from the control panel weekly.
    a. On the Control Panel, navigate to Dashboard - Details
    b. Record the following parameters on the Edstrom Indigo RO Weekly Log Sheet:
        - Date/your initials

- Permeate temperature
- Daily runtime
- Total gallons made
- Inlet Conductivity
- Permeate Flow
- Permeate conductivity
- Recovery
- Final Pressure
- Percent Rejection
- Post Chlorine
    - Calculate using approved test kit



8. Preventative maintenance:
    a. Performed semi-annually by an approved vendor.

9. Alarm:
    a. If there is an alarm on the control panel, contact the Area Supervisor immediately.

REFERENCE DOCUMENTS

- Edstrom Indigo RO Reverse Osmosis System Operation Manual (Revision K, June 2018)

REVISION HISTORY			
REVISION NUMBER	**AUTHOR(S)**	**EFFECTIVE DATE**	**REVISION(S)**