

**STANDARD OPERATING PROCEDURES**  
**DIVISION OF COMPARATIVE MEDICINE**  
**UNIVERSITY OF SOUTH FLORIDA**

SOP#: 808

Date Issued: 2/21

Date Revised: 2/21

Page 1 of 3

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**TITLE:** **Tecniplast ZebTec Centralized Aquatics System**  
**SCOPE:** Research and Animal Care Personnel  
**RESPONSIBILITY:** Facility Manager, Professional and Administrative Staff, Research and Technical Staff  
**PURPOSE:** To Outline the Proper Procedures for the Operation and Maintenance of a Tecniplast ZebTec™ System

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**I. PURPOSE**

1. This procedure outlines the operation and maintenance of the ZebTec system

**II. RESPONSIBILITY**

1. The Facility Manager in conjunction with the research staff ensures that the system is properly maintained and in good working order.
2. Care and oversight of the ZebTec system is a collaborative effort between research and CM staff. CM staff are the single point of contact for the mechanical room 1333A.
3. The veterinary professional, administrative, and managerial staff ensures that all research and technical staff using this equipment are adequately trained and experienced in the use of the ZebTec™ system.
4. Research and technical staff using this equipment are responsible for reading the ZebTec user manual to understand the operation and maintenance of the system.

**III. SYSTEM APPLICATION**

1. The ZebTec™ system is an automated aquatics system designed to house Zebrafish and to control and monitor the water conditions and water quality within the system.

**IV. SYSTEM START UP AND USE**

1. The ZebTec™ system can be acclimated by several methods. Refer to the ZebTec™ user manual.
2. Access to the systems key functions is password-protected. There are different password levels according to how critical the setting is in terms of equipment function and operators and animal safety. To enter the password, press the corresponding icon  on the toolbar.
3. Display parameters The GREEN POINTER indicates the SET Value. The BLUE POINTER indicates the current (READ) Value. Whenever the parameter is out of the desired operating range (set in the SETTING PAGE) the dial turns yellow (WARNING RANGE) or RED (ALARM RANGE - and the related alarm is triggered).

4. Should an alarm occur, the screen will automatically display the alarm message (see software section for reference). Check the manual's **Troubleshooting Section** the cause of the alarm and follow instructions to solve the problem.
5. A list of Warning Codes and Warning Messages their Causes and Solutions can be found in the Centralized Aquatic System Software Manual
6. The water inlet must be turned off to remove individual tanks from the system.
7. Tanks and tank components should be disassembled and washed separately using reverse osmosis water.
8. Best washing results are obtained with water temperatures between 50-60°C (122<sup>o</sup>-140<sup>o</sup>F). Rinsing may be carried out at up to 80°C (176<sup>o</sup>F).
9. Never remove more than 20% of the caging at one time, as this disrupts the rack flow system.
10. Only use RO water for the system.

## V. MAINTENANCE

### 1. Daily Maintenance

- a. **Touch screen Display**- check the display at least daily to verify it is operational and for the absence of alarm messages. Record the water quality information on the **Room Status Sheet**.
- b. **System Function**- correct operation of the system can be verified by observing the display and water levels.
- c. **Tank Inspection**- visual inspection of each tank should include checking for water levels.
- d. **Bicarbonate Dosing System**- visually inspect to verify proper operation and tank level.
- e. **Salt Dosing System**- visually inspect to verify proper operation and tank level.

### 2. Weekly Maintenance

- a. **Water Quality**- conducts a water analysis to determine ammonia, nitrite, pH, hardness and alkalinity using a commercially available water quality test kit. This information is recorded on the **Room Status Sheet**.
- b. **Spot Clean Caging**- once per week, remove and clean any caging that has become dirty by placing tanks into Calypso Tank Washer for a full cycle.
  1. **Never remove more than 20% of the caging at one time.**

### 3. Biweekly

- a. **Check Heating Elements** - Main system screen will indicate an alarm if there is a malfunction – please see User Manual page 38.
- b. **Check UV Lamps** -The screen on the front of the UV unit indicates UV bulbs are functioning. The main system screen will also indicate an alarm if there is a malfunction – see User Manual page 25.
- c. **Check Conductivity Probe** – lift out of water and check for damage.
- d. **Check pH Probe** – lift out of water and check for damage.

#### 4. **Monthly Maintenance**

- a. **pH Probe** - check probe for damage.
- b. **Conductivity Probe** - check probe for damage.
- c. **Check Float Switches** - water level should be about 1 inch below the overflow outlet. If the water level is above the float switch may need to be replaced by contacting Tecniplast for service.
- d. **Check Drum Filter** - washing pressure gauge – ensure reading 7 bars.
- e. **Check Carbon Filters** - change when pressure differential is 10 PSI. Rinse carbon bag with RO water and let soak overnight to remove carbon dust. Check carbon bag sock for damage when replacing.

#### 5. **Three-Month Maintenance**

- a. **Check Biofilter Air Distribution** - Lift lid to see if Biofilter chips are moving around. Place finger over air nozzle to ensure air is flowing.
- b. Heating Element- ensure element is heating properly by checking Home screen.
- c. **Calibrate pH Probe** - Using calibration standard solutions as described in the manual. Ensure the probe's metals ends never touch and do not wipe or it will result in damage to the probe.
- d. **Calibrate Conductivity Probe** – Using calibration standard solutions as described in the manual. Ensure the probe's metals ends never touch and do not wipe or it will result in damage to the probe.

#### 6. **Six-Month Maintenance**

- a. **Check Sump level** and clean with Gravel Cleaner if there is residue build up.

#### 7. **Annual Maintenance**

- a. **Change UV lamps** annually or every 9,000 hours. To be performed by Tecniplast service provider. See Manual
  1. Do not touch lamps with dirty fingers
  2. Turn off power to UV lamps before removing/replacing
  3. Allow lamps to cool 30 minutes before removing
  4. UV lamps can cause burns to unprotected eyes and skin.
  5. Ensure lamps are in the housing and covered before powering on.
- b. **Clean Biofilter Tank**- Will be performed by Tecniplast service provider.
- c. **System Cleaning**- periodically disassemble system for cleaning. Tanks are removed and cleaned refer to ZebTec user manual. Will be done by Tecniplast.
- d. Additional maintenance/service should be performed by Tecniplast authorized personnel.

## VI. **TROUBLESHOOTING**

1. Refer to the ZebTec™ User Manual.

## VII. **REFERENCES**

1. Refer to the ZebTec™ Centralized User Manual for additional information or contact Tecniplast customer service.

**Approved:**

**Date:**