STANDARD OPERATING PROCEDURES

DIVISON OF COMPARATIVE MEDICINE
UNIVERSITY OF SOUTH FLORIDA

TITLE:	**Monitoring Animal Drinking Water Quality**
SCOPE:	Animal Care Personnel
RESPONSIBILITY:	Facility Manager and Technical Staff
PURPOSE:	To Outline the Proper Procedures for Collecting, Processing, and Testing Animal Drinking Water Quality

I. PURPOSE

1. To describe the procedures for assuring the quality of potable water for research animals housed in animal facilities under the direction of the Division of Comparative Medicine.

II. RESPONSIBILITY

1. Facility Managers are responsible for the quarterly assessment of water quality using a AccuPoint Luminometer. Water testing will be conducted during the months of March, June, September, and December and the results of testing reported to the Assistant Director.

2. The Assistant Director is responsible for reviewing and maintaining the results of water sample testing, ensuring that water sampling is performed by the methods and at the frequency described in this procedure and oversight of any follow-up testing in response to failed tests.

3. The Assistant Director maintains a copy of the annual water quality report obtained from the City of Tampa Water Department, and all facility records of animal drinking test results performed for current year.

III. MONITORING DRINKING WATER USING a LUMINOMETER

1. Quarterly, while performing microbiological monitoring of sanitation procedures, a water sample(s) will be obtained from an animal drinking water source identified within the facility (e.g., water bottle filling station, sink, or automatic watering zone) and tested for the presence of adenosine triphosphate (ATP).

2. The luminometer® uses a process called bioluminescence to detect the presence of ATP. ATP is a biochemical present in all organisms, is useful in detecting the presence or absence of organic matter (i.e., living or dead microorganisms), and is a good indicator of water quality.

3. A **different water source will be tested each quarter** in facilities with multiple animal drinking water sources.

4. **For each drinking water system zone,** samples will be collected from the farthest point possible from the zone's solenoid or manual water valve.

5. The NeoGen® AccuPoint Luminometer is used to test water for the prescence of ATP, please see **SOP #1164 *Neogen® AccuPoint Luminometer.***

6. Sampling Procedure
    a. Water Sampler
        1. Select the correct site to be tested. A water droplet icon on the display indicates to use the water sampler option.
        2. Take the sample by dipping the water sampler into the liquid.
        3. Hold the sampler vertically and fully depress to activate. Note: the sampler must be held vertically.
        4. Mix for 2 seconds, but do not shake the sampler. Place in instrument immediately
        5. The results will appear after 15-20 seconds. Pass will display in green with a check mark. A fail reading will display in red with an X.

7. Press the eject button to remove the sampler from the reader component. Used swabs are non-toxic and may be disposed of in non-hazardous trash.

8. **Optimal results are obtained when swabs are read within one minute (However, if a sample is taken and not activated, the sample can be read within 2hrs)**

9. Test Failure Follow-up:
    a. **Facility Managers will be notified of failed tests**.
    b. **Facility Managers are responsible for investigating and correcting the cause of failed tests**. After corrective actions are complete additional samples of the same water source(s) will be retested. All retests will be conducted no more than 5 days after the failed test. If corrective actions require equipment repairs, the retest period may be extended.
    c. If the retest fails, Facility Managers will consult the Assistant Director to reassess the cause of the failure and adequacy of corrective actions taken.

10. Data:
    a. The data file created during the download using AccuPoint, will be automatically saved but must be connected to a designated computer source to upload from the unit.
    b. The Assistant Director will update and maintain results of testing.

IV. WATER TESTING BY FLORDIA DEPARTMENT OF HEALTH

1. The Assistant Director may submit water samples to the Florida Department of Health (FDH) determine the **heterotrophic plate count (HPC)**, and/or the **total coliform count (TCC**) as needed or in response to unsatisfactory quarterly novaLUM® testing.

2. **A minimum of two (2) samples will be collected from each** potable water source to be tested within the facility. Samples from watering systems will be collected from the farthest point possible from the zone's solenoid or manual water valve.

Sample Collection

1. **Obtain 2 samples from each point of collection.** A sample is required for each test requested (TCC & HPC).

2. Samples are collected and submitted in **Nasco Sodium Thiosulfate Whirl-Pak Bags**.

3. Sample bags are sterile and contain a chlorine neutralizer (white tablet). **DO NOT TOUCH THE OPENING OR INSIDE SURFACES OF THE BAG. DO NOT REMOVE THE WHITE TABLET**.

4. Before collecting sample **remove any aerators or other devices from the faucet** or hose bib.

5. **Disinfect the faucet or tap at the opening with bleach**. Spray bleach up into the mouth of the tap or faucet. Recommended bleach dilution is 1 part household bleach to 9 parts water. Be careful to avoid contaminating sample with bleach solution, it can invalidate result.

6. **Flush line by running water for at least 5 minutes**.

7. **Do not to rinse the sample container** or closure.

8. **Adjust water flow** to the diameter of a pencil.

9. **Prepare sample bag** by tearing off top of bag at scored line, and pull tabs outward to open bag.

10. **DO NOT ALLOW FAUCET TO TOUCH THE INNER SURFACES OF THE BAG**.

11. **Fill bag to upper fill line** (4oz. fill line). Samples with less than 100 ml will be rejected.

12. **Do not overfill the container or pour any water out** as this will cause dilution/loss of thiosulfate. If the bag is over-filled by accident, collect another sample instead of pouring out part of the sample.

13. **Pull wire ends to close bag**. There should be a small amount of air in the bag with the water. While holding the wire ends whirl the bag 3 complete revolutions. (Do not roll wires down to seal).

14. **Turn wire tapes in on opposite faces of fold to seal**.

15. **Label the sample** with name, collection number, and point of collection with a felt tip marker which contains waterproof ink.

16. **All samples must be stored in a cooler with an ice pack(s)**. DO NOT use wet ice. Samples are only valid up to 30 hours after collection. Placing the submittal form in a plastic bag in the cooler will prevent the paper from getting wet in transit. Do not store samples in a hot vehicle or in sunlight.

Sample Submission

1. **Up to 7 sample points may be submitted per submission form**.

2. **Submit a separate submission form for each type of testing requested**. Samples for HPC on one form, samples for total coliform on another form.

3. **Samples for HPC analysis are only accepted Monday-Wednesday.**

4. **Fill out the required fields** on the sample submission form.
   a. System/Owners Name: *USF Division of Comparative Medicine*
   b. Address of Collection: *fill in complete address*
   c. Sample site: *Facility abbreviation and room # (e.g., COM 1360)*
   d. Supply type: *Check other*
   e. Date/Time Collected: *required for sample acceptance*
   f. Sample ID: *same as on the sample bag*
   g. Mailing Address: *University of South Florida, Division of Comparative Medicine, MDC 20, 12901 Bruce B. Downs Blvd., Tampa, FL. 33612*

5. **Call FDH lab at least 1 hour prior to delivering samples for HPC** at 974-4103. This is necessary to allow for the preparation of test media.

6. **Deliver samples** to: *William G. "Doc" Myers Bldg., Department of Health Tampa Branch Laboratory*, *3602 Spectrum Blvd, Tampa, FL 33612.* **Follow signs to loading dock** for sample drop off.

7. Water Laboratory hours are:
   a. Monday - Wednesday 8:00 AM – 4:30 PM
   b. Friday (No HPCs) 8:00 AM – 1:00 PM

Test Results

1. Test results are reviewed and maintained by the Assistant Director.

2. EPA Maximum contaminant level (MCL) for drinking water samples are:
   a. TCC - zero
   b. HPC - 500 bacterial colonies/ml
   When sample test results exceed the MCL the water system from which the sample was derived will be retested within 14 days following the instructions above.

3. When results of retesting the water sample/system exceed the MCL the Assistant Director or their designee will be responsible for evaluating the water system and flushing procedures, and taking appropriate corrective action(s) until the system is below the MCL.

4. Retesting and corrective action(s) should be documented and maintained by the Assistant Director with the water quality reports/records.

Approved: **Date:**