Temperature Monitoring of Walk-in Refrigerator, Freezer and Toxicity Laboratory Incubators

1. SCOPE AND APPLICATION

1.1. This method is used as an adjunct to the laboratory's automated temperature monitoring system to ensure that temperatures (ranges) are maintained for storage of samples and performance of bioassay testing. It is applicable to the Walk-in Refrigerator and Walk-in Freezer located in B227 and the toxicity lab incubators located in B246.

2. SUMMARY OF METHOD

2.1. Temperatures in the Walk-in Refrigerator and Walk-in Freezer are monitored by the laboratory's automated temperature control system (Checkpoint) and by manual observation. Temperatures in the toxicity laboratory incubators (Numbered 1, 4, 5, 6 and 7) are monitored manually and by the Checkpoint automated system. If temperature range excursions occur, steps are taken to initiate corrections.

Note: At the discretion of the lab coordinator, during holidays and periods of no tests, daily temperature recording (in LIMS logbooks) is not required.

2.2. Interferences

2.2.1. Power failures, Walk-in(s) and incubator doors left open, Blocked air flow in incubators etc.

3. EQUIPMENT AND SUPPLIES

3.1. Walk-in Freezer – located in B227

3.2. Walk-in Refrigerator – located in B227

3.3. Thermo-Scientific Incubator (Precision Model 818) (#s 1, 4, 5, 6 and 7) with temperature and lighting control – located in B246

3.4. Calibrated thermometers – located inside refrigerator, freezer, and incubators

3.4.1. Usually a glass thermometer, calibrated per SOP TA-06.13

3.5. Computer with access to LIMS- Laboratory Information Management System and access to Checkpoint.

4. MEASUREMENT

4.1. Walk-in Refrigerator and Walk-in Freezer

4.1.1. **Daily** - check the temperature displayed in the small gray box located above the control panel located on the front of each Walk-in.

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4.1.2. Using the toxicity lab laptop, enter the displayed temperature(s) in **LIMS/Laboratory/Technical/Laboratory Logbook/Temperature Log**.

Note: The allowable *wet* temperature ranges for the Walk-in Refrigerator and the Walk-in Freezer are, respectively, 0º to 6ºC and -30º to -5ºC. Temperatures not conforming to these ranges are reported to the appropriate supervisory staff for corrective action.

4.1.3. **At least once a month (preferably on the first of the month)**, read and record (on the printed log sheet located on the walk-in fridge) the temperature from the calibrated thermometer located inside each Walk-in.

4.2. Toxicity lab Incubators (#s 1, 4, 5, 6 and 7)

4.2.1. **Daily** - Open the incubator door and observe the temperature measured by the calibrated thermometer (1 in each incubator). Close the door

4.2.2. Using the toxicity lab laptop, enter the thermometer temperature(s) in the **LIMS/Laboratory/Technical/Laboratory Logbook/Temperature Log.**

4.2.3. **Weekly** – Obtain temperature data from the Checkpoint system. Record temperatures on appropriate test bench sheets for the start and end of each test. Print out a graph of the temperatures for each test period and put them in the *Checkpoint Temperatures* binder.

Note: The allowable *wet* temperature range for Incubators #1, #4, #5, #6 and #7 is 17ºC to 28ºC. (not to be confused with the recommended test temperature and allowable test temperature ranges). Temperatures of in-use incubators not conforming to these ranges are reported to the appropriate supervisory staff for corrective action.

5. DATA ARCHIVAL

5.1. Use a black, waterproof pen for all bench sheets and logbooks.

5.2. Record temperatures in **LIMS/Laboratory/Technical/Laboratory Logbook/Temperature Log**.

5.3. To correct raw data entries, place a single line through the incorrect or illegible entry, write the corrected entry near the error, date and initial the correction. Do not overwrite entries.

5.3.1. The corrected entry is written as near as possible to the error or in the comment box on the appropriate bench sheet.

5.3.2. If the correction requires an explanation, write a comment and reference the error with a letter. Initial and date the explanation. Do not attempt to put all information (correction and comments) into a small space.

5.3.3. Use sequential alphabetical annotation to identify errors and corresponding comments (use A for first error and use A for corresponding explanatory comment; use B for second error, etc.).

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6. QUALITY CONTROL

6.1. Refer to QA manual for corrective action and handling out-of-control data.

7. SAFETY/HAZARDOUS WASTE MANAGEMENT

7.1. Proper laboratory protection, including lab hood or ventilation system, lab coat, gloves and safety glasses, is required when working with chemicals and unprocessed samples.

7.2. Refer to the Laboratory Quality Manual for sample disposal

7.3. Refer to the Laboratory Health and Safety Plan and Hazardous Waste Management

8. REFERENCES

8.1. Manual for Precision Scientific Dual Program Illuminated Incubator 818

8.2. DEP SOP TA-06.13, *Thermometer Accuracy Check and Use*

8.3. Laboratory Quality Manual https://floridadep.gov/dear/florida-dep-laboratory/content/dep-laboratory-quality-assurance-manual-and-sops

8.4 Safety Manual https://www.floridadep.net/resources/health-safety-manual

APPENDIX OF CHANGES

12/12/2007 Added Scope and Application; Summary of Method; and Appendix of Changes

09/28/2011 Major modification of SOP to reflect new controller system for the Walk-in Refrigerator and Freezer. Systems were overhauled in 2011.

08/07/2013 Reformatted SOP.

01/29/2015 Formatted for 508 compliances.

07/07/2015 Updated links and allowable temperature ranges for alarms.

07/11/2016 Updated links.

09/14/2017 Updated links.

08/27/2018 Updated links, deleted Data logger information, added information about the Checkpoint system and printing temperature graphs for Bioassay tests. Changed font to Calibri.

07/26/2019 Updated to include using toxicity lab laptop to record temperatures in LIMS and removed sections with recording temperatures in the *Refrigerator and Freezer Temperature Log Book* and *Temperature Log Book Culture Room, Incubators, AGP*.

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08/26/2020 Updated data archival section with new universal language. Updated equipment section language.

07/30/2021 Updated links.

08/01/2022 Clarified calibrated thermometer. Added SOP Reference. Checked links.

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