MANAGING ALERTS FROM THE TALOSYS WIRELESS MONITORING SYSTEM

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
LABORATORY

2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399

TABLE OF CONTENTS

FIGURES AND TABLES

1.0 SCOPE AND APPLICATION

The DEP Central Laboratory uses a TALOSYS Wireless Monitoring System to monitor appliances and lab spaces that must be maintained within specific temperature operating conditions. TALOSYS measures temperature and activates a system alert when the monitored parameters exceed specific thresholds for more than a pre-set acceptable period of time. The TALOSYS system is principally used to collect temperature metadata and to monitor temperature conditions; it is not used for calibration purposes.

When a system alarm is triggered, TALOSYS alerts users via text and email so that corrective action can be taken to save samples at risk of compromise or total loss. Samples in the affected unit must be evaluated and reported as appropriate. Qualification of data due to lack of maintained temperature is determined by SOPs, methods, and the best professional judgement of the work group manager and senior analysts. TALOSYS electronically stores monitoring data and corrective actions in an online database accessible from a website.

2.0 LOGGING INTO TALOSYS

2.1 Log into the TALOSYS web portal: https://mytalosys.talosys.io by entering your username and password (**Figure 1**).

Figure 1 - TALOSYS Login Screen

2.2 Contact Scientific Services Support to add users to dashboard and web portal login. Only Administrators can add or remove users and assign permission levels. (**Figure 2**)

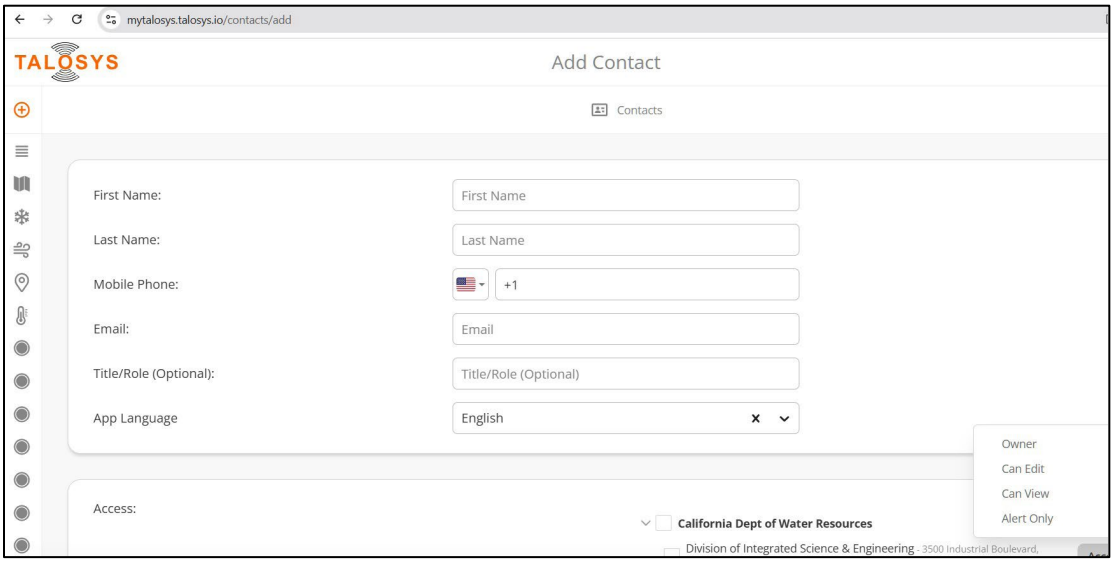


Figure 2- TALOSYS Add Contact Screen

3.0 EQUIPMENT AND ALERT GROUPS

3.1 TALOSYS Login Web Portal - https://mytalosys.talosys.io/

3.2 Gateways – Tektelic Cellular Gateway Modules (currently 5 units at DEP) (**Figure 16)**

3.3 Sensors and Probes – wireless LTC2-LB temperature sensors. (**Figure 13)**

3.4 TALOSYS sensors & probes are assigned to Equipment Groups based on Laboratory Program and temperature monitoring requirements. An appliance can only be assigned to one Equipment Group. Equipment Groups are listed in **Table 1**.

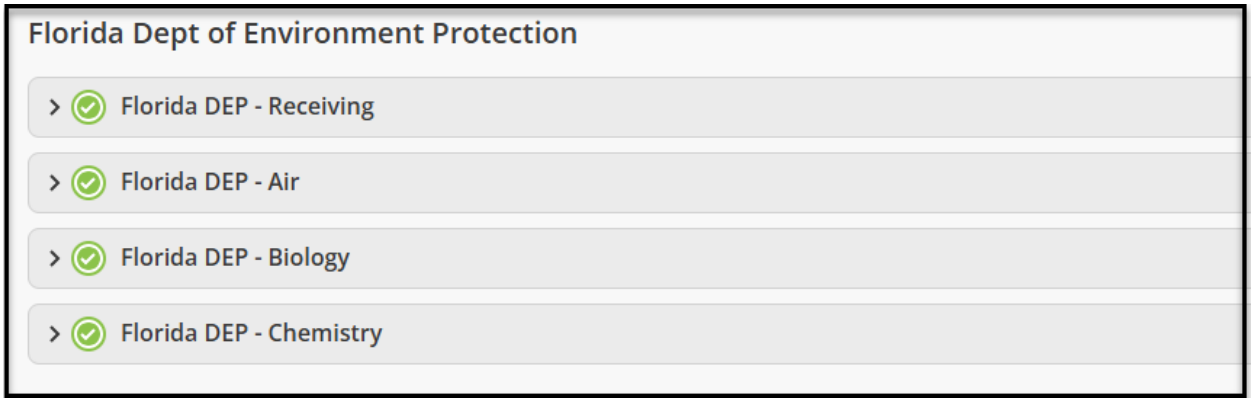


Figure 3 - TALOSYS DASHBOARD "Group Screen"

Lab staff can be members of multiple Equipment Groups. To view Equipment Group members and assigned appliances select *Menu* → *Groups* → *Alerts* from the menu bar, select the equipment of interest from the list and click the *Edit "pencil"* button. Staff may elect to receive emails and/or text message alerts for the appliances in the Group. (**Figure 3 – Figure 6**)

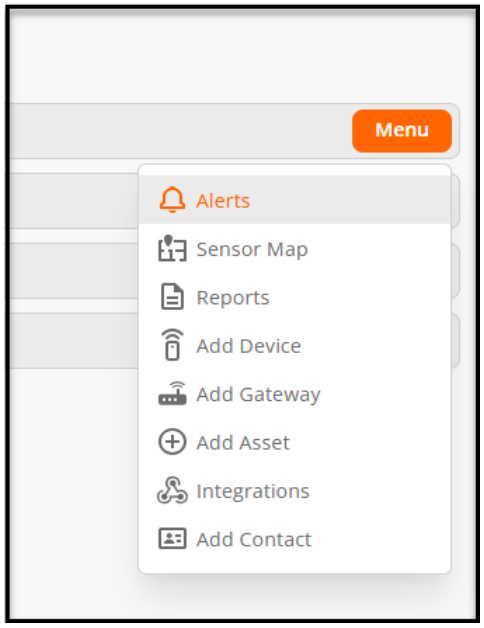


Figure 4 - TALOSYS View & Access Alerts Screen

Figure 5 - TALOSYS View & Edit Alerts Sensor Screen

Figure 6 - TALOSYS Edit Contact Alerts

4.0 LABORATORY TWENTY-FOUR HOUR ALERT EQUIPMENT

4.1 Eleven appliances used for sample storage (**Table 1**) are assigned to Receiving - 24 Hour Alert notification. Chemistry and Biology supervisors rotate 24-hour on-call shifts every two weeks to ensure that alerts from these appliances are immediately addressed.

Table 1- Limits and Locations for 24hr Alert Equipment

Unit ID	Room	Temperature Range	Time Outside Range Before Alarm Activates
Refrigerator 1	C301	0 to 6.0 °C	2 hours
Refrigerator 4	C301	0 to 6.0 °C	30 minutes
Refrigerator 5	C301	0 to 6.0 °C	30 minutes
Refrigerator 6	C301	0 to 6.0 °C	2 hours
Refrigerator 7	C301	0 to 6.0 °C	2 hours
Refrigerator 8	C301	0 to 6.0 °C	2 hours
Refrigerator 9	C301	0 to 6.0 °C	2 hours
Biology Walk-in Freezer	B227	-30.0 to -15.0 °C	30 minutes
Biology Walk-in Refrigerator	B227	1 to 6.0 °C	30 minutes
Refrigerator 10	C201	0 to 6.0 °C	30 minutes
Refrigerator - sliding door	C201	0 to 6.0 °C	30 minutes

4.2 The supervisor on-call shift schedule is maintained in the "Alarm On-Call" calendar in Outlook Shared Calendars and can be updated as needed. Use the "Alarm On-Call" calendar to adjust the "On-Call (Biweekly)" Alert Group in TALOSYS when the on-call shift changes.

4.3 When an alarm condition occurs for an appliance listed in Table 1, both a text message and email alert are sent to notify designated responders so that corrective action can be taken. On any given day, two supervisors are on call and must respond to these alerts. If a supervisor is unable to perform on-call duties, it is that supervisor's responsibility to recruit another supervisor to cover the shift and also to edit the "On-Call (Biweekly)" Alert Group in TALOSYS (see section 4.2).

5.0 MANAGING ALERTS

5.1. If a text or email alert is received, log into TALOSYS. It is important to address alerts in a timely manner. The program will not repeat an alert for the same appliance if such an alert already exists. The list of appliances/sensors/probes and the alert status of each is displayed on the TALOSYS website dashboard. Locate the unit of interest in the "Current Alert" window (**Figure 7**).

The color-coding for each sensor is as follows:

Green = Within acceptable temperature range

Red = Outside acceptable temperature range

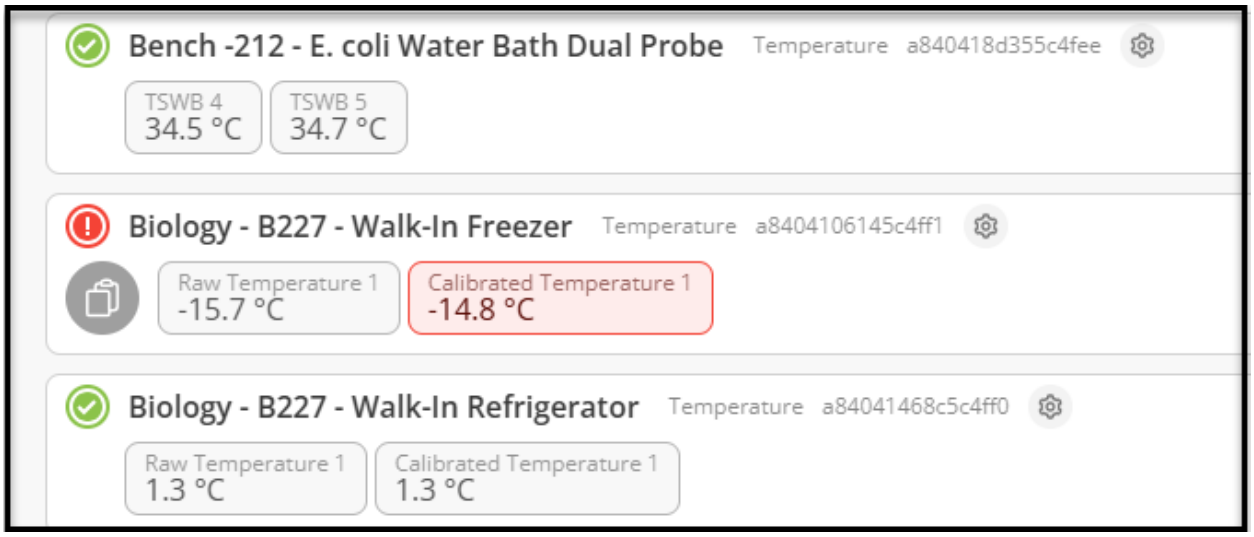


Figure 7 – TALOSYS Dashboard & System Status

5.2. Generate a graph for the appliance in alarm status. In the Current Alerts window, right click the sensor of interest and select "Chart" (**Figure 8**).

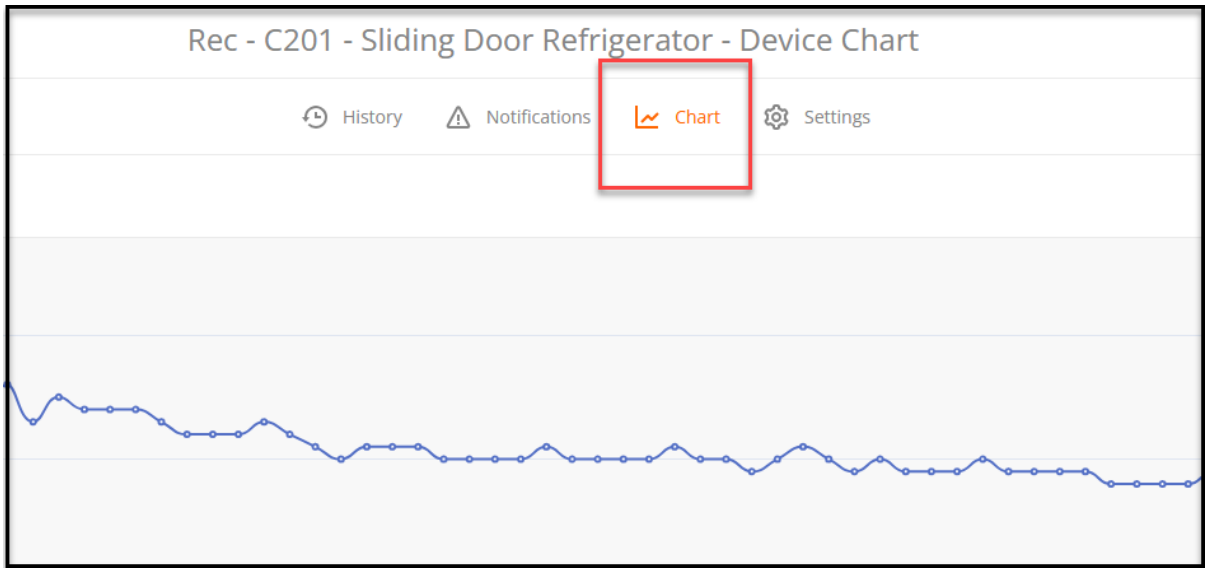


Figure 8 – TALOSYS Chart "Temperature Graphing"

5.3. If possible, physically inspect the appliance to determine the cause of the alarm (e.g., door left open, defrost cycles, or power interruptions), and correct the issue. If an on-call supervisor determines that repairs are required outside of business hours, contact the appropriate company. For units listed in Table 1, contact Brown's 24-hour service:

(850) 877-2226. If needed, see **Figure 16** on page 14 for a diagram of rooftop compressor units.

- The walk-in freezer contains mostly fish samples, chlorophyll filters and Tox group *C. dubia* food items. The fish tissue samples and filters can be placed on ice, in a closed cooler in the Biology walk-in refrigerator. The *C. dubia* food items can be placed in any available freezer. If the food thaws, it only has a 2-week shelf life left.

5.4. Take Corrective Action. After addressing the issue causing the alarm (e.g., closing a door that was inadvertently left open), return to Manage List page with Equipment Group, select the sensor of interest, Notifications, and select "Corrective Action" (**Figure 9**).

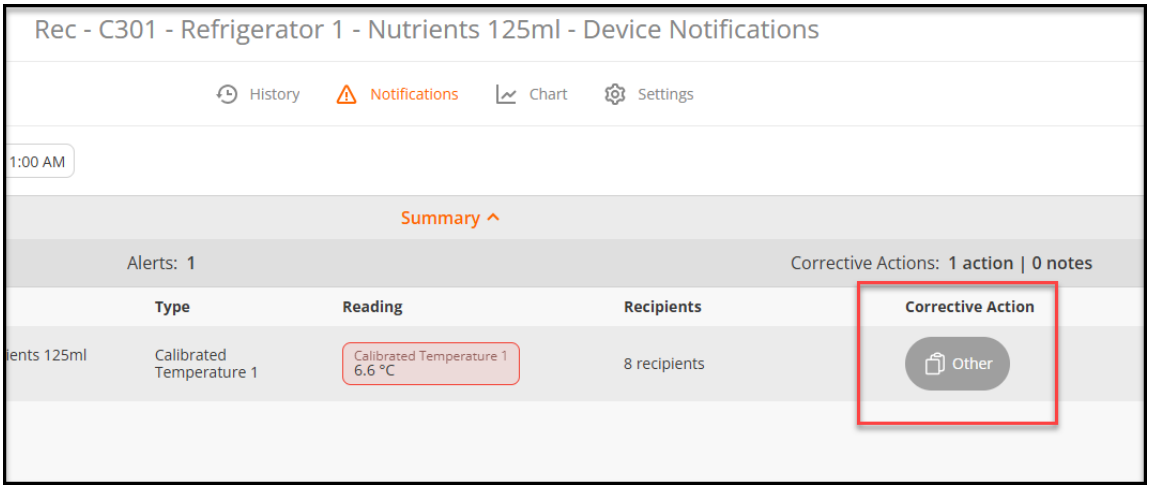


Figure 9 - TALOSYS Corrective Action

5.4.1. On the Corrective Action screen (**Figure 9)**, check all boxes that apply regarding the alarm and corrective action taken, and record a note if needed.

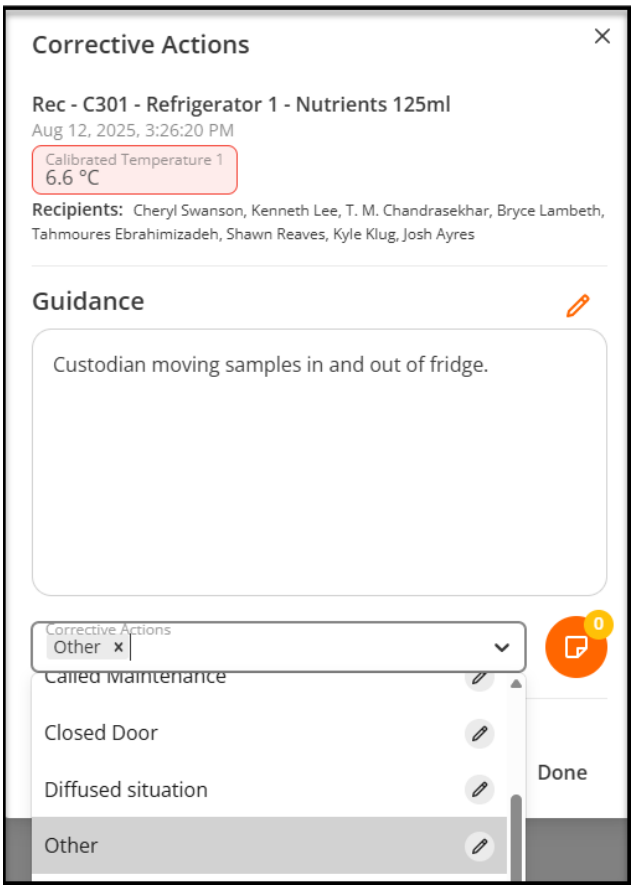


Figure 10 – TALOSYS Corrective Action Log

5.4.2. Enter in the name and condition of the sample(s) in the upper box, and document the corrective action taken in the lower box (**Figure 10)**. Document all information to ensure compliance with regulatory and QA requirements.

6.0 Sample Handling and Relocation Guidelines

6.1. Move samples, as necessary. Many Chemistry samples cannot be stored outside their required temperature range for more than 8 hours. If a unit cannot be repaired within that timeframe, transfer the samples to alternate storage locations. Additionally, efforts should be made to move items as described below.

- Do not transfer samples to refrigerator 9. This unit is used for storage of highly contaminated, flammable waste samples.
- Samples in most small refrigerators may be moved to the larger walk-in refrigerators.
- Do not move volatiles analyses (S-VOC.., W-VOC, etc.) samples to either the Biology walk-in refrigerator or refrigerator 5.
- Do not move empty sample containers. If storage space is limited, do not move samples that were collected more than 28 days prior.

7.0 SYSTEM VERIFICATION / VALIDATION

Perform regular checks as described below to ensure that any alerts have been addressed and that TALOSYS is properly functioning.

7.1 Daily Status Checks. Group Administrators are required to save reports or numeric charts of temperature information including information relevant to their groups. It should be mentioned that global users can see all TALOSYS devices.

7.1.1 A minimum of two TALOSYS Group Administrators, one from Biology and one from Chemistry, should create daily reports. Daily reports can be generated by selecting *Menu* → *Reports* → *Reports* → *Florida DEP- Summary Reports* → *View*.

7.1.2 Daily reports are available to view in TALOSYS for one year after the date of creation.

7.1.3 Each Program should also save daily reports to the network. (i.e. Biology saves in Lab5 > Biology > BioCommon > TALOSYS reports).

8.0 ANNUAL PROBE RECALIBRATION & MAINTENANCE

8.1 Probe replacement and/or maintenance is handled by TALOSYS. There is no need to recalibrate the probes internally at DEP. Replacement equipment, batteries, and calibration records can be obtained by contacting our TALOSYS account manager.

(Currently) Surya Sarda: surya.sarda@talosys.io

9.0 TROUBLESHOOTING SENSOR CONNECTIONS

9.1 No sensor Contact Alert

9.1.1 To check the status of the sensor, press the button on the XXXXX once (**Figure 11)**. The light should turn on, remain solid for a few seconds, then turn off. This indicates the sensor is connected to the gateway (GW). If the light flashes on and off immediately, then it is not connected or not powered on.

Figure 11 – TALOSYS Sensor Button

9.1.2 To reset the sensor connection, press and hold the button for about 3 seconds until the light starts to flash. Once it has located the GW, the light will flash faster, turn solid, then turn off. Press the sensor button once to ensure it is connected.

9.1.3 If the sensor does not connect, contact TALOSYS for support or replacement.

9.1.4 Check gateway and sensor status in TALOSYS manage List, Gateways are current under the Biology Group. (**Figure 12 & 13)**.

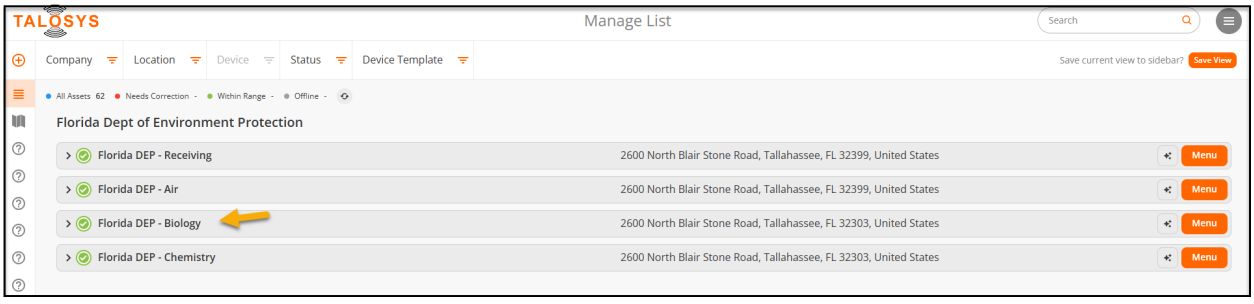


Figure 12 - TALOSYS GATEWAY Location

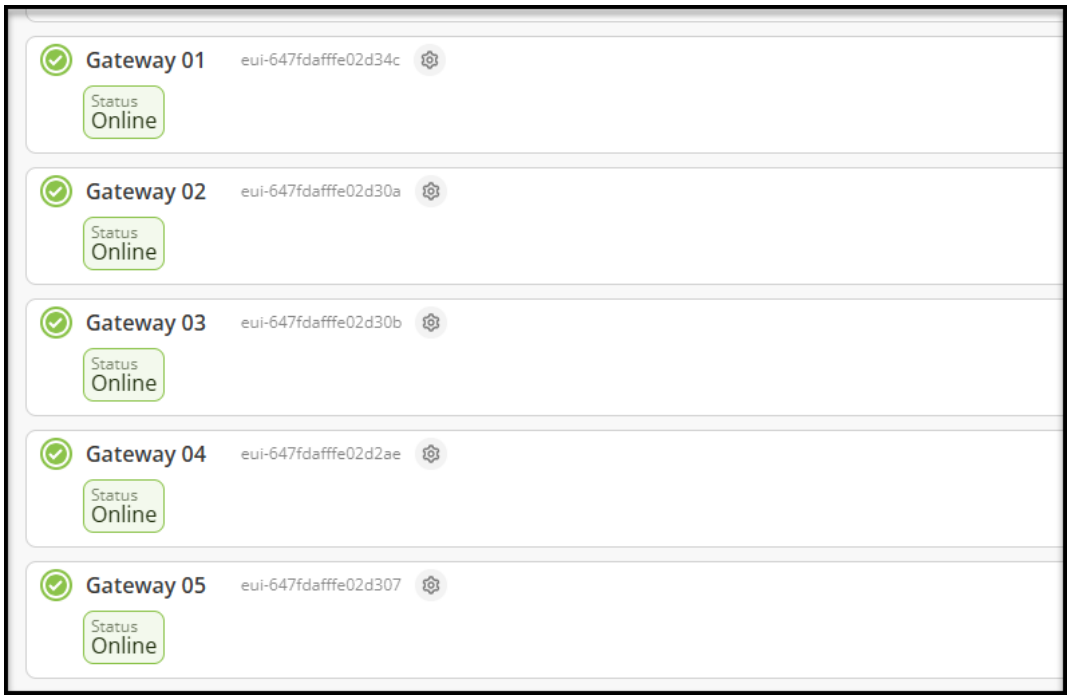


Figure 13- TALOSYS GATEWAY Status

Figure 14- TALOSYS Gateway Hardware

9.1.5 There are 5 Gateways throughout the lab. If one is offline, power cycle the device for 60 seconds. If it does not reconnect, contact TALOSYS support.

9.1.6 Sensors store temperature data even when not connected to a GW. Once a sensor reconnects, it will backlog all temperature data.

9.1.7 Long power or server outages may cause a delay for sensors to restore communication. If a sensor has been unable to communicate for more than 2 hours, contact TALOSYS technical support.

Generate a reading. Allow time for software to refresh. If a reading is not generated, the connector likely needs to be replaced. Wait for several auto generated readings to ensure a connection is established.

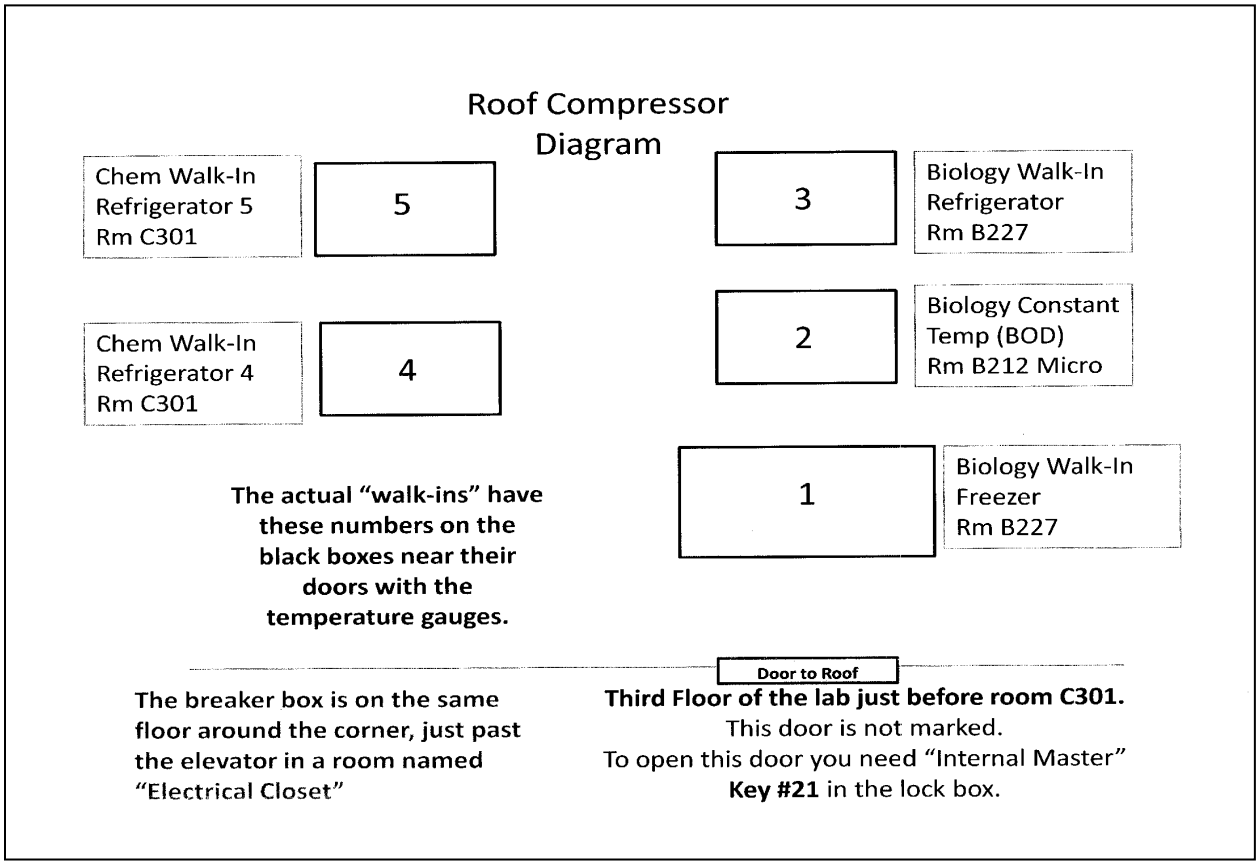


Figure 15 - Roof Compressor Diagram

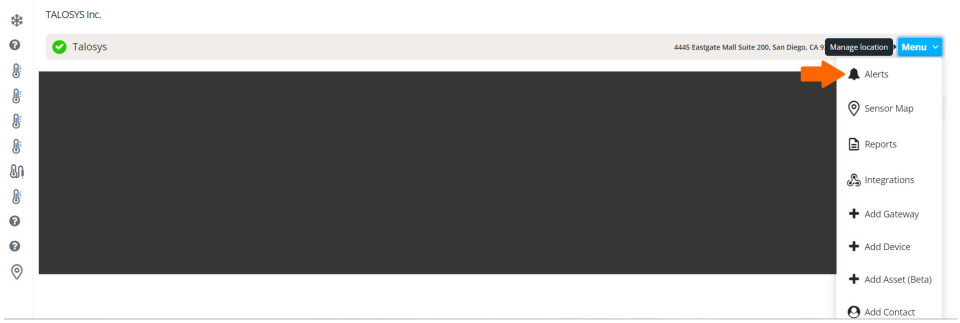
In Case of Freezer or Refrigerator Breakdown, contact:

Brown's Commercial Refrigeration
4020 Woodville Hwy #D
Tallahassee, FL 32305
24-Hour Service: **(850) 877-2226**

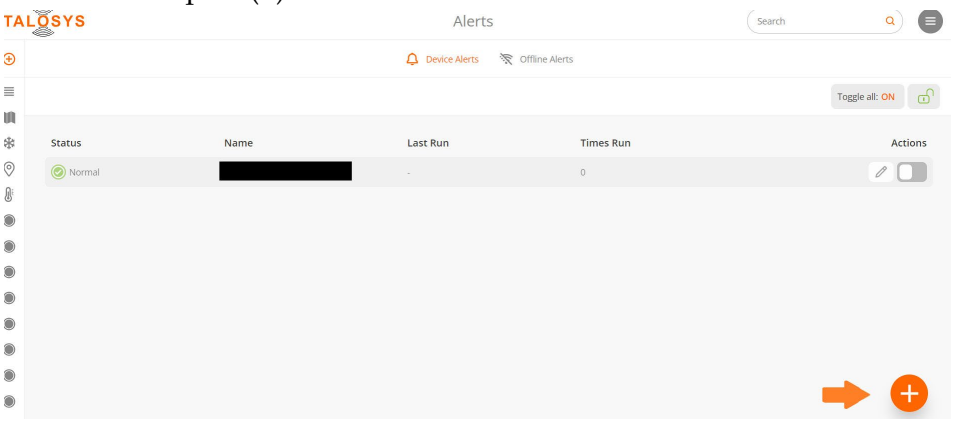
10.0 APPENDICES FROM TALOSYS QUICK USER GUIDE

Appendix 1.0 – CREATING ALERTS IN TALOSYS

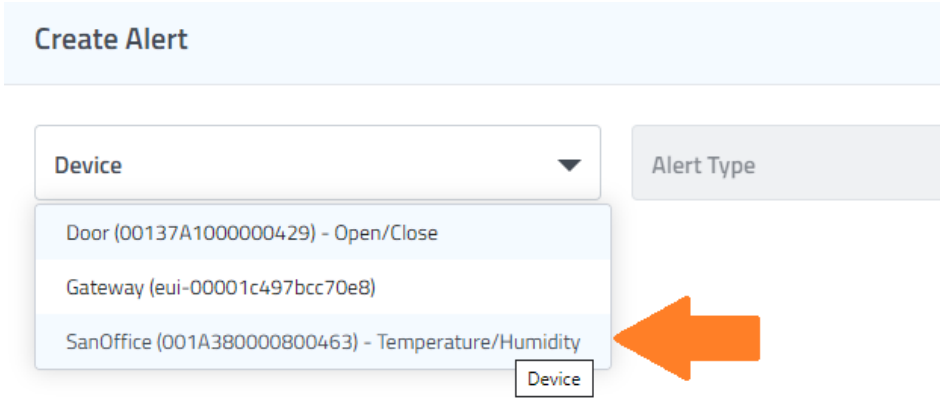
1.1 To create an alert, expand the Menu and select Alert.



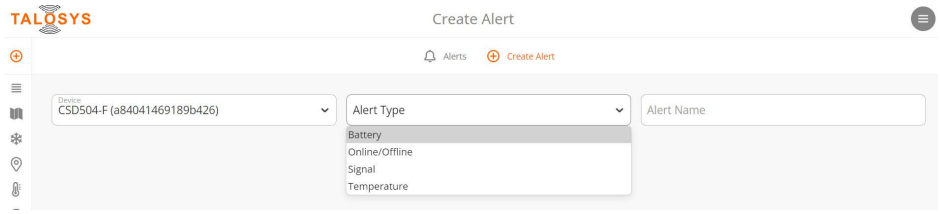
1.2 Click the "plus (+)" icon to create a new alert.



1.3 Click Device, and a list of devices at the selected location will appear. Select the device for which you wish to configure an alert.

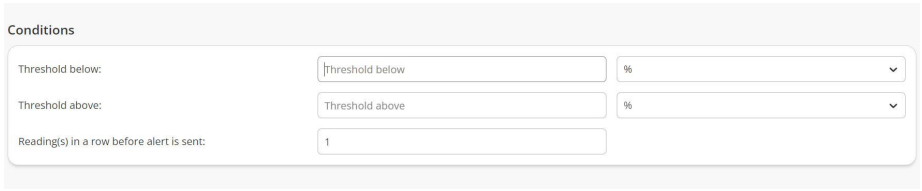


1.4 Select the Alert Type from the list of available alert options.

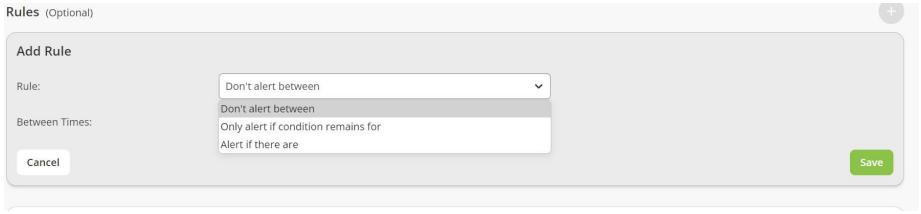


1.5 Customize the Conditions for the alert.

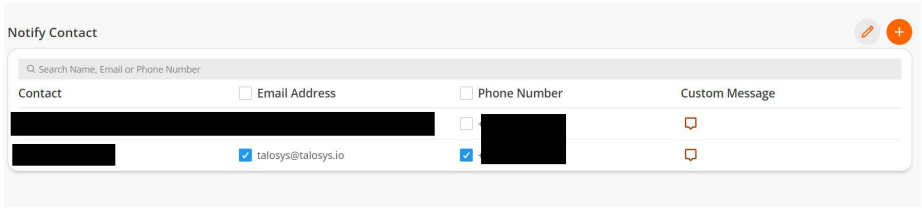
These thresholds determine when the alert will trigger.



1.6 (Optional) Add Rules to define additional parameters or exceptions to consider before an event triggers.

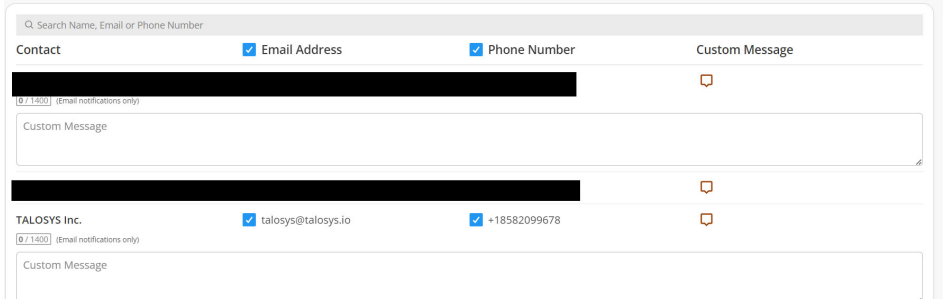


1.7 Add the Recipients who will be notified when this alert occurs.

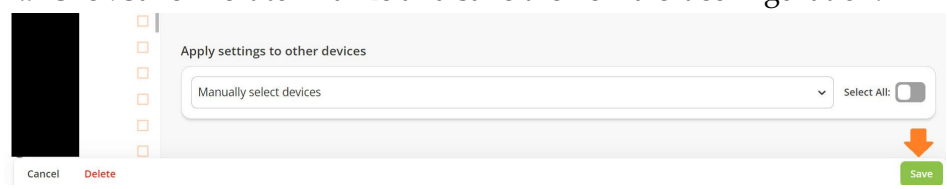


1.8 Add a Personalized Message for recipients.

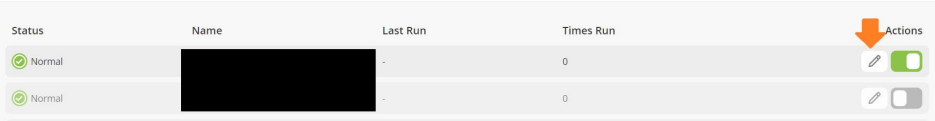
Messages may be customized for each receiver, and notifications can be sent by Email, Phone, or Both.



1.9 Click Save Alert to finalize and save the new alert configuration.

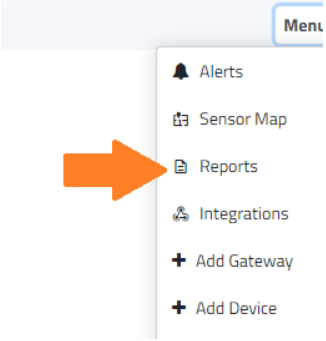


1.10 To Edit or Update an existing alert, click the Pen (edit) icon next to that alert entry.

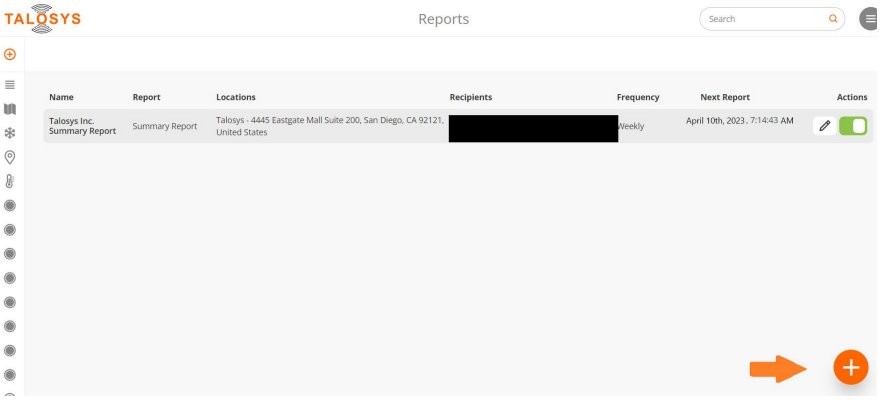


Appendix 2.0 -- CREATE AND SCHEDULE A NEW REPORT

2.1 Expand the Location Menu and select Reports.

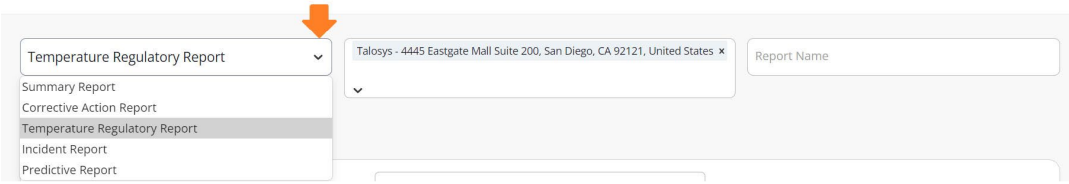


2.2 Click the "plus (+)" icon to create a new report.



2.3 Expand the Report Menu and select the desired Report Type.

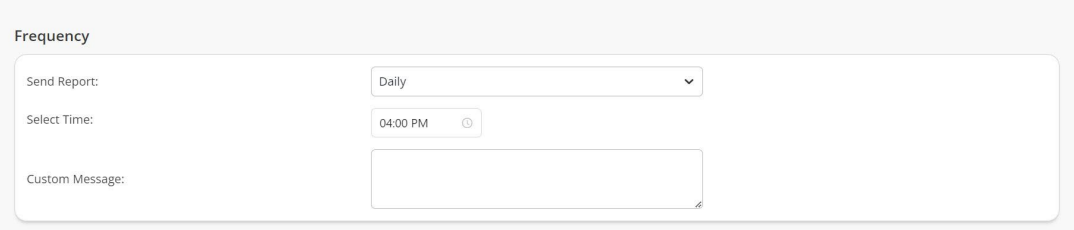
Optionally, assign a unique report name for easier identification.



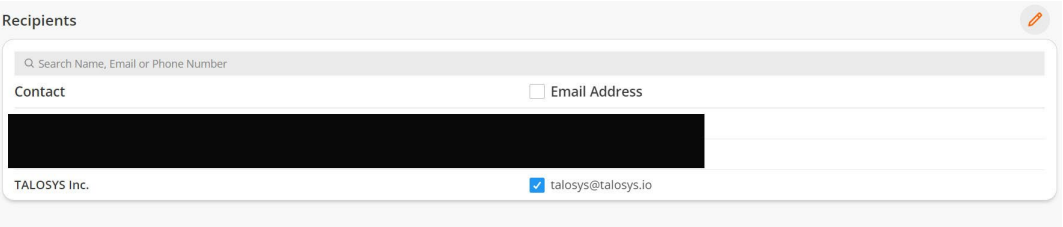
2.4 Choose the Frequency of report generation:

- Daily
- Weekly
- Monthly
- One-time

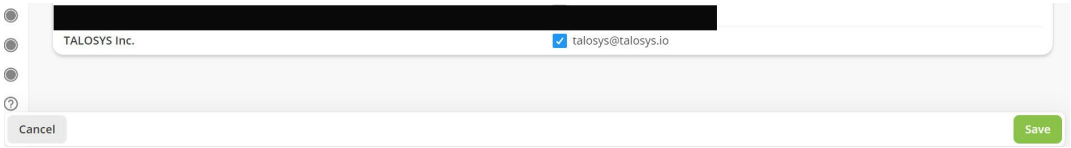
Then specify the Time of Day and an optional Custom Message to include with the report.



2.5 Select the Recipients who will receive the report.



2.6 Click Save Report to add it to the list of automatically generated reports.

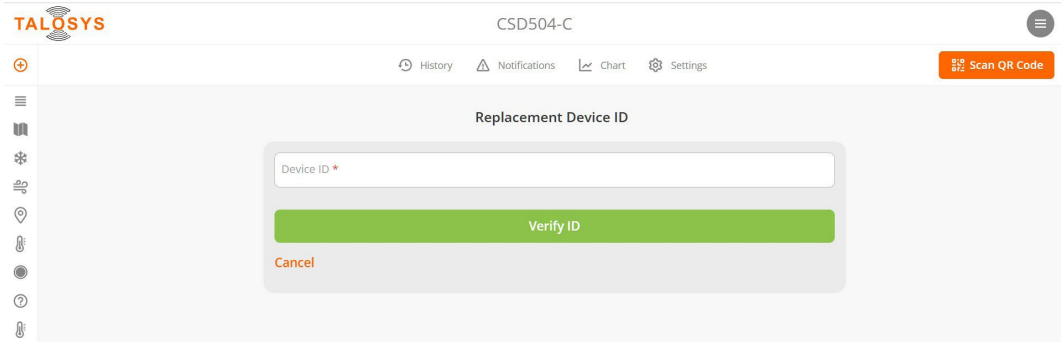


Appendix 3.0 – REPLACE SENSOR

3.1 Click on the List sensor on the left column to bring up the list of sensors.

- Select a sensor to replace and click on it. You may need to expand the list to get to the right sensor.
- Click on Settings on top right.

3.2 This will bring up a new dialog where you can simply scan the new sensor in.



11.0 Appendix – Temperature Monitoring for Microbiology Appliances

This appendix describes monitoring settings for the microbiology water baths, incubators and fridge /freezer used in the Biology Bench group.

Data Review and Corrective Action Summary:

- Excursions ≤ 15 min near threshold: monitor only.
- 15–30 min minor deviations: document corrective action, continue incubation.
- 30 min or > 1 °C deviation: evaluate data validity, notify supervisor.
- All corrections and remarks are recorded directly in Talosys using the *Corrective Action* feature.

Test / Device	Target (°C)	Acceptable Range (°C)	Alert Thresholds (°C)	Probe Locations
Colilert-18 / Water baths Dual Probe	35.0	34.5–35.5	34.4 / 35.6	TSWB 4 and TSWB 5
Enterolert / Water baths Dual Probe	41.0	40.5–41.5	40.4 / 41.6	TSWB 7 and TSWB 11
mFC Agar / Water baths Dual Probe	44.5	44.3–44.7	44.2 / 44.8	TSWB 8 and TSWB 9
QC / HRT 60 L Incubator Dual Probe	35.0	34.5–35.5	34.4 / 35.6	Top and Bottom shelf
QC / Bench Isotherm Dual Probe	35.0	34.5–35.5	34.4 / 35.6	Top and Bottom shelf
*Micro Bench Freezer	-20	N/A	-26 / -10	Upper Chamber
*Micro Bench Fridge	2	N/A	-0.2 / 5	Lower Chamber

Notes:

TSWB: Thermo Scientific Water Bath.

Microbiology appliances are located in room B 212.

*Microbiology / Fridge appliance shares a dual probe; one for each chamber.

Read Interval: Talosys captures temperatures every 15 minutes.

Delay Before Alert: Talosys triggers an alert after 45 minutes of continuous out-of-range readings.

The Chlorophyll Room B205A - contains one single temperature probe. This probe is not action-critical.

- Acceptable range: ~15°C to 25.5°C
- Alerts outside this range generally do not require someone coming into the lab during non-working hours. If an alert occurs on a non-working day, acknowledge and document only unless the temperature is extremely high or low and poses equipment risk.

12.0 Appendix – Temperature Monitoring for Toxicology Appliances (Incubators)

This appendix describes monitoring settings for incubators and culture rooms used in the Toxicology group.

Device	Target (°C)	Acceptable Range (°C)	Alert Thresholds (°C)	Probe Type
Inc 1	25	24–26	23 / 27	Dual probes: top and bottom shelves
Inc 4	25	24–26	23 / 27	Dual probes
Inc 5	25	24–26	23 / 27	Dual probes
Inc 7	20	18–22	17 / 23	Dual probes
Inc 8	25	22–28	21 / 28.5	Dual probes
Inc 9	25	22–28	21 / 28.5	Single probe; small incubator, 2 shelves
Culture Room (B246)	25	19–26	18 / 26.5	Single probe; not action-critical

Data Review and Corrective Action Summary – Toxicology Incubators
Temperature Monitoring Basics

- Talosys records incubator temperatures every **20 minutes**.
- An alarm is triggered after **6 consecutive out-of-range readings** (~2 hours).
- All corrections and remarks must be recorded directly in Talosys using the **Corrective Action feature**.

Excursion Guidelines

Situation	**Action**
Single reading slightly outside target range (one 20-min interval)	Monitor only; no immediate action needed. Document in Talosys.
2–5 consecutive out-of-range readings (~40–100 min)	Document the excursion in Talosys. Continue monitoring; no immediate in-person response required.
6 consecutive out-of-range readings (~2 hours) or temperature <22°C / >29°C	Evaluate data validity. Notify Tox supervisor if persistent. Only respond in person if safety or equipment risk is suspected.
Safety risk observed (flooding, power failure, smoke, strong odors)	Notify supervisor **immediately** and follow safety protocols. Do **not** handle organisms or adjust incubators unless instructed.

On-Call Check Procedure

- Review Talosys readings:
    - Current temperature
    - Trend (rising/falling)
    - Time the alarm started
- If temperature is **22–29°C**, no in-person response is needed, document only.
- If you check in person, confirm:
    - Incubator is running (lights on / humming)
    - Door is fully closed
    - No obvious issues (flooding, power failure, smoke)
    - Temperature is <22°C or >29°C, or multiple incubators are alarming
    - Alarm indicates "No Power," "Sensor Error," or "Device Offline"

Do NOT:

- Move jars or test organisms
- Adjust temperatures
- Open incubator doors unless already open

Culture Room Special Note:

- Alerts outside **15–26°C** generally do **not require a response during non-working hours**.
- Acknowledge and document only unless the temperature is extremely high or low and poses equipment risk.

Appendix of Significant Changes