Minus80 Monitoring User Guide

Getting started with Minus80

Minus80 Monitoring makes it simple to self-manage your temperature monitoring and alerting needs. This guide contains easy to follow directions and screenshots to guide you through the user interface. We are glad to provide assistance whenever needed – contact Minus80 at support@minus80monitoring.com, or 855.646.8780 Option 2. Thank you for the opportunity to provide this service to you!

Minus80 User Guide Overview

This document provides a brief overview of the Minus80 Monitoring user interface. To access the interface, browse to **https://minus80.com**. When connecting to the site for the first time, you may be asked to accept the SSL Certificate. This should only occur the first time you access the system from your browser. All access to the Minus80 interface is secure and encrypted. The site may easily be saved to your bookmarks, desktop, tablet, smart phone.

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Logging into Minus80

When you access the Minus80 Portal at myminus80.com you will first be prompted for your **User Name and Password**. Once you are in the portal you may always go to the *'My Account'* tab and change your password if you wish to do so. Please contact the person at your facility in charge of the monitoring system to be assigned a new password, or contact us at Minus80 Monitoring at 855.646.8780 or support@minus80monitoring.com.

There is a Password Recovery Link called *'Forgot Your Password'* under the login area on this page. Please click on this link. You will be prompted to enter your User Name and email address, and then you will be sent an email shortly. Click the link in the email to reset your password. You will then have 30 minutes to reset your password using this link. After you click Submit, you will be redirected back to the login page.

Different Levels of Login Credentials for Minus80

Depending on what log-in credentials you are given, you will have the following associated tabs, screens, and abilities on the Minus80 web portal – find your user login type below to learn more.

USER LOGIN TABS: Home, My Account, Reports and Logout

- Home – Screen with main view of units displayed
- My Account – Allows you to change your password only.
- Reports – Allows you to view a previous month's report per unit. The reports link shows a list of historical monthly reports for all monthly units.
- Logout – Allows you to safely leave your Minus80 session on the portal.
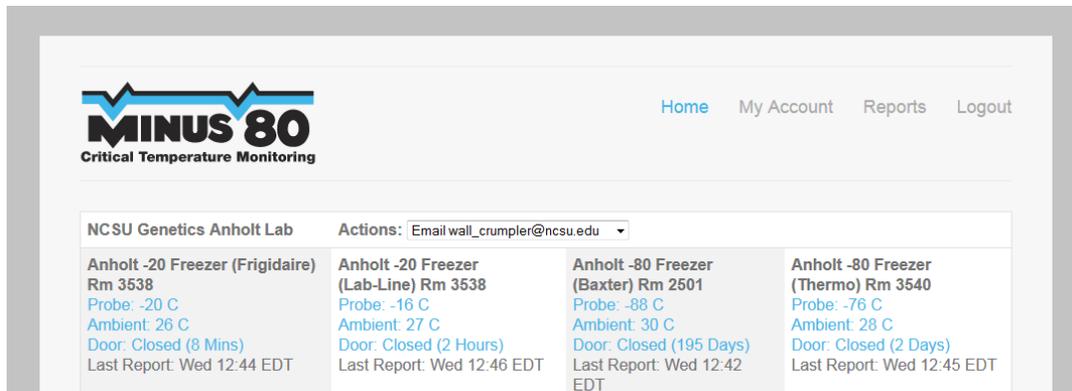
VIEW ONLY USER LOGIN TABS: Home, My Account, Reports and Logout

- The View Only User has the same view as above User Login but there is **no ability to edit** any parameters or fields within the Minus80 software with the exception of their individual password under the My Account tab.


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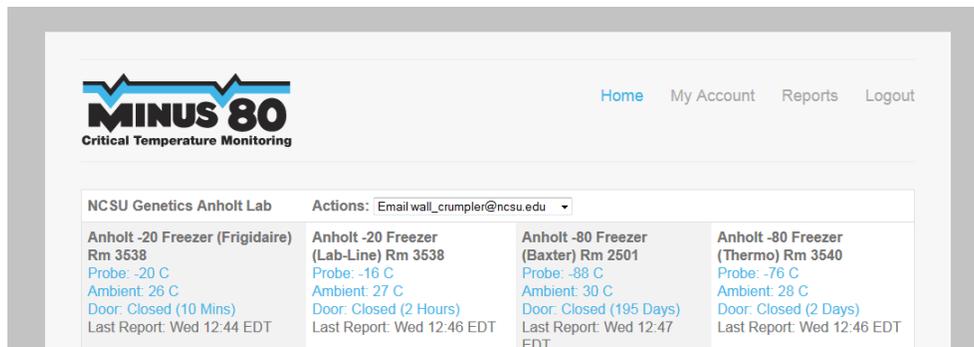
USER ADMIN LOGIN TABS: Home, Users, Contact, Facilities, Units, My Account, Reports, and Logout

- **Home** – Screen with main view of units displayed
- **Users** – Those with a 'User Admin login' may create new users. You may determine if the new login will have a 'User' level login or a 'View Only User' login. Each may have specific views of facilities and units, each with unique alert lists.
- **Contact**- Main email contacts for labs/facilities for Minus80 Monitoring Center to alert you if there is a system error. Here you may also create a specific action list on whom to alert and when to alert in the event of a system error. Minus80 alerts you in the event of a loss of connection and when that connection is restored.
- **Facilities** – Groupings of units within your view – usually by lab or by area. You have the ability to create and name a new facility in this section which will appear in your main view.
- **Units** – List of individual units which you may rename or assign to another facility or grouping.
- **My Account, Reports,** and **Logout** – as above
- **See Page 12** for further details on the advanced features and privileges of **User Admin login**

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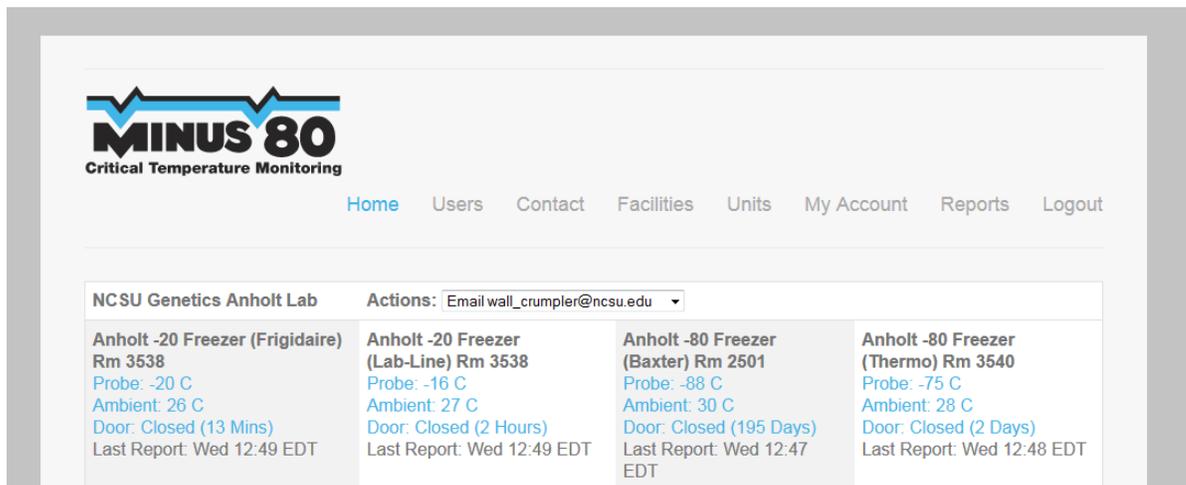
Home Screen Overview

After logging in, you will be shown your main or **'Home'** screen with the current status of all units. Any units in alarm would be indicated by red text. In this example below, **'NCSU Genetics Anholt Lab'** is the facility name and in this lab there are five units being monitored, each individually named. In this example, the name is the PI's name, what type of unit it is, and it's location. This is customizable by you. To edit a unit or view reports on the unit, simply click on **'Probe, Ambient, or Door'**. The words *'Last Report Wed 12:18 EDT'* tell you the last time this unit's temperature was sampled and reported to the Minus80 Monitoring center. You may also 'hover' over the words **'Probe, Ambient, or Door'** to see a pop-up indicating if alarms are set and parameter settings. [Example: Hover over ->**Probe: -16 C**]

The actual data shown on your screen will vary based on the systems being monitored. Based on your particular configuration, Minus80 may display:

-   Probe – temperature displayed in Celsius (Probe: -16 C)
-   Ambient – temperature displayed in Celsius (Ambient: 27 C)
-   Ambient Humidity – displayed in % (Humidity: 52 %)
-   Door Status – displayed as Open/Closed with time indicating how long it has been in that state (Door: Closed (21 Mins))
-   Alarm Status – displayed as Alarm: OK. This is used on systems with alarm contact outputs
-   CO_2 Concentration – displayed in %
-   Incubators – displayed as OK or Alarm; (Lower Unit: OK, Upper Unit: OK)
-   LN2 – displayed as **OK** or Alarm: OK; also displayed as temp via LN2 probe (Probe: -193 C)

When you are created as a User, you are assigned the units you will see on your Home Screen page. 'User Admin' may create/delete Users, create/delete Facilities, and move Units to different Facilities as this is customizable.

Setting & Editing Temperature Parameters

When you are at the Home Screen and you are looking at a particular unit, you may click on either 'Probe, Ambient or Door' to edit the parameters, or whatever the control unit is monitoring (LN2, Humidity,etc):

When you click on the first one - 'Probe' or 'Ambient', this is what you see:
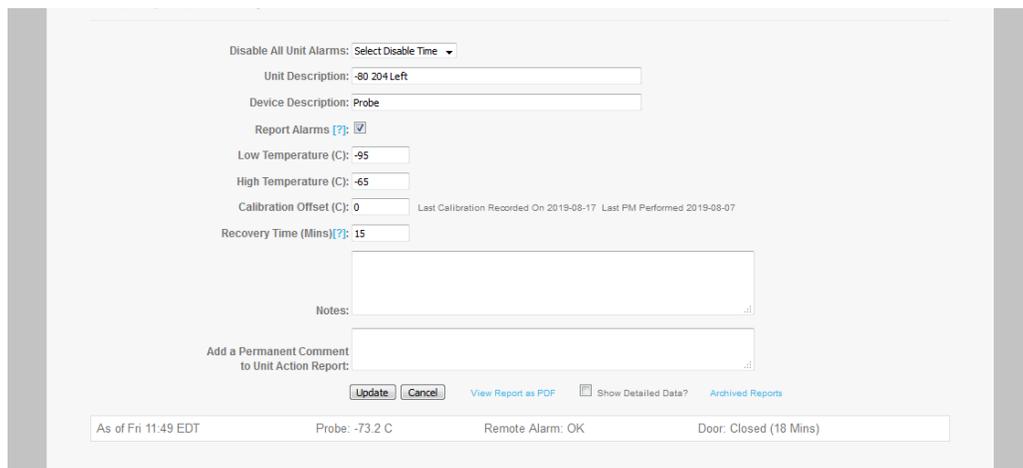
This screen above shows a typical screen for editing all temperature probe parameters. You may edit the unit description, temperature parameters for alerting, calibration offset, recovery time, check box to report alarms, and the option to view the alert activity:

- **Unit Description / Device Description:** These are reported to you via text/email/voice when the unit detects an alarm condition. Make sure the unit description **uniquely** identify the units you are monitoring – a good example is *'Armstrong Lab -80 Thermo Freezer Rm 3410'.*
- **Report Alarms:** To receive alarms, this box **MUST** be checked. This feature is used or unchecked to suppress alarms when a unit is being serviced greater than 24 hours.
- **Disable All Unit Alarms for 24 Hours:** this is at the top of the page – this will turn off all alarming for only this one unit and automatically turn it back on at the time you choose – 1 hour to two weeks. The message will be RED and alarming will re-enable itself at the time selected.

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- **Temperature Parameters:** Low and High temps are specified in Centigrade. By default, Minus80 will alert you if the probe reports a temperature **Outside** of the range you specify
- **Calibration Offset:** The calibration field is used to calibrate the displayed temperature to a certified value. Enter +/- degrees to correct the displayed temperature. On occasion, this may be useful depending where the probe is placed within the unit.
- **Recovery Time (Mins):** When a temperature alarm occurs, the system will pause this amount of time in minutes to allow the unit to recover. This buffer time helps to avoid excessive alarms caused by opening unit doors. Think of recovery time as 'the amount of time a freezer may be outside of normal temp range before the monitoring system starts alerting people.'
- **Notes field:** Any notes you wish may be added here – where the probe is placed within a unit, if a buffer agent is used, condition unit was found, etc.
- **Permanent Comment field:** Any notes you wish to add to report may be placed here – it will have a time/date stamp.
- **Daily, Weekly, or Monthly Summary:** Graphical account of average temperature and a list of any alarms that have occurred this month. There are also high and low alarm points of all alarm conditions. PDF's of all graphs are available by clicking on 'View Report as PDF' above the graph. Links to a Weekly Summary and Monthly Summary are found below each graph.
- **Monthly Unit Action Events for This Month:** All alarms / alerts sent for this unit will be listed here for the current month.
(see two screen shots below for examples of above bulleted items)
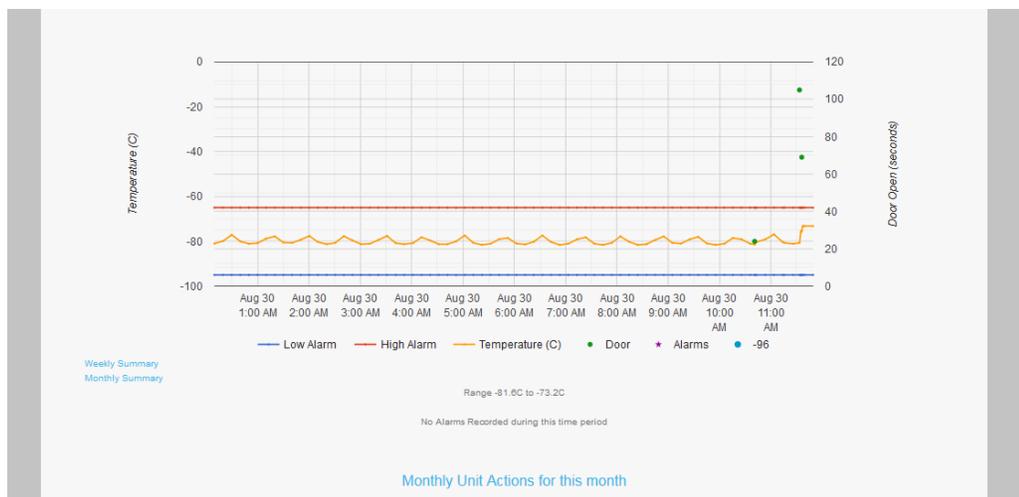
Setting & Editing Door Alarms

For Door alarms, Minus80 allows you to configure how long a door must be open before the alarm occurs. If you wish to report Door alarms, simply click on 'Door' under each unit name on the Home screen:
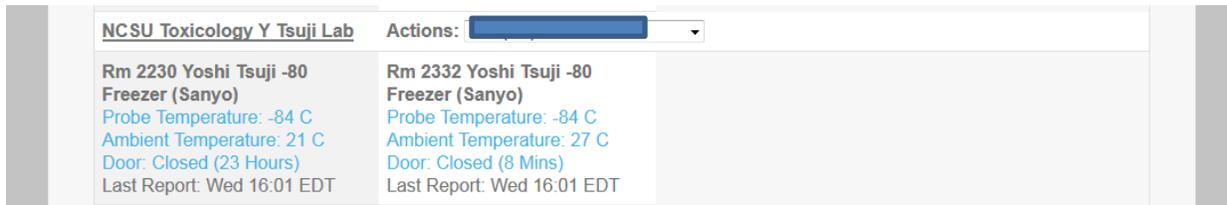
NCSU Genetics Anholt Lab

Anholt -20 Freezer (Frigidaire)
Rm 3538
Probe: -22 C
Ambient: 26 C
Door: Closed (10 Mins)
Last Report: Wed 13:46 EDT
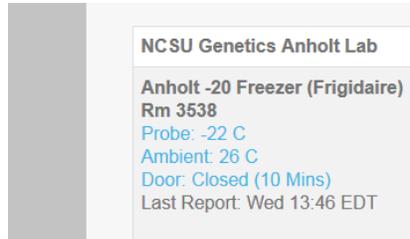
Once you have clicked on 'Door', check the **'Report Door Open Alarms'** box. Enter the maximum time a door can remain open <u>before</u> generating the alarm. We find that most tend to choose to have either 1, 2, 3, 4 or 5 minutes pass before sending alarms to allow for sample transfers, etc. The lower portion of the screen shows every door openings for the current day. In this example below, the box is checked to report door alarms if the opening <u>exceeds 5 minutes</u> and shows all monthly door events. All door events are recorded and show time of opening as well as elapsed time in minutes and seconds. These are viewable daily, weekly, or monthly. PDF's of all door openings are available by clicking on 'View Report as PDF' above 'Door Events for Today'. Links to a Weekly Summary and Monthly Summary of all door events of the current month are found below the list of door events for today. At the end of every month, all door openings are archived in the monthly report on each unit.

Unit Description:	Anholt -20 Freezer (Frigidaire) Rm 3538	Disable All Unit Alarms for 24 Hours
Device Description:	Door	
Report Door Open Alarms [?]:	☑	
Alarm if Door is open for	5 Minutes	
Notes:		
	Update View Report as PDF	

Door Events for Today

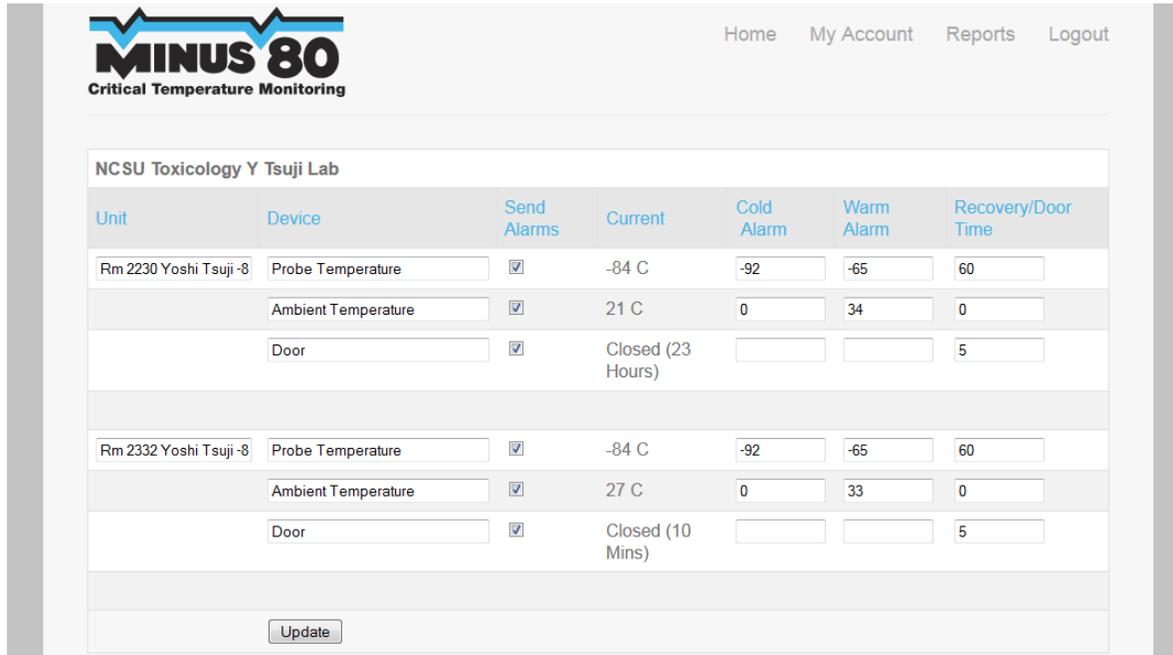| Door Opening	Elapsed Time (H:M:S)	Exceeded Alarm Threshold
Wed 04/02/2014 08:20	00:00:53	No
Wed 04/02/2014 08:58	00:00:07	No
Wed 04/02/2014 11:25	00:00:05	No
Wed 04/02/2014 11:29	00:01:43	No
Wed 04/02/2014 11:52	00:00:12	No

The information regarding door events has been found to be useful to help reinforce good lab habits and protocols.

Setting & Editing Facility Alarms (*from one screen*)

There are **two ways** to set / edit parameters, thresholds, and recovery times. The previous pages have reviewed doing this one freezer, fridge, or incubator at a time. This section details how to do this for an entire Facility at one time. It is up to you how you choose to customize the settings – both accomplish the same goal/task. When on the Home Screen, click on the Facility Name: (*NCSU Toxicology Y Tsuji Lab*)

NCSU Toxicology Y Tsuji Lab	Actions:
Rm 2230 Yoshi Tsuji -80 Freezer (Sanyo) Probe Temperature: -84 C Ambient Temperature: 21 C Door: Closed (23 Hours) Last Report: Wed 16:01 EDT	Rm 2332 Yoshi Tsuji -80 Freezer (Sanyo) Probe Temperature: -84 C Ambient Temperature: 27 C Door: Closed (8 Mins) Last Report: Wed 16:01 EDT

This will open to a new screen that looks like this one below where you may make any edits necessary:

MINUS 80
Critical Temperature Monitoring

Home   My Account   Reports   Logout

NCSU Toxicology Y Tsuji Lab

Unit	Device	Send Alarms	Current	Cold Alarm	Warm Alarm	Recovery/Door Time
Rm 2230 Yoshi Tsuji -8	Probe Temperature	☑	-84 C	-92	-65	60
	Ambient Temperature	☑	21 C	0	34	0
	Door	☑	Closed (23 Hours)			5
Rm 2332 Yoshi Tsuji -8	Probe Temperature	☑	-84 C	-92	-65	60
	Ambient Temperature	☑	27 C	0	33	0
	Door	☑	Closed (10 Mins)			5

Update

From the screen shot above of the 'Facility Edit' view, you notice you may edit:
- Whether to send alarms or not
- Settings for high and low temp thresholds
- Recovery times for temps to go outside of parameters
- How long a door may stay open before Minus80 will send alarms
- The unit name may also be modified on this screen

 **Remember to click 'Update' at the bottom of the page when finished editing Facility Alarms.

Graphs – Average Daily, Weekly, & Monthly Temps

This screen below shows the average hourly temperatures for a frequently accessed -20 freezer. Any alarms would show up as red dots and would indicate the temperature went outside of the temperature parameter settings. To have a greater snaphot, you would click on the 'Weekly Summary' or 'Monthly Summary' below the graph.

Sample -20 Freezer Daily Temp Graph: (example of how a -20 freezer cycles & flucuates during 24 hrs)
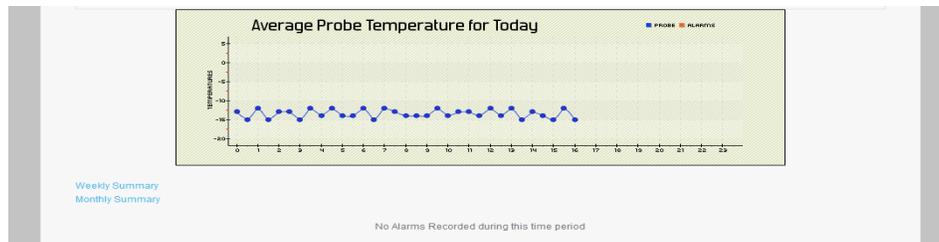

Below is an example of a graphical report of average daily temperature readings from a -80 freezer. In this case, there are steady readings all hovering around -75 to -80, therefore there are no alarms are indicated in red. (The Weekly Summary and Monthly Summary are both available below the Daily Graph. At the beginning of every new month, the prior month's historical reports are stored off in the 'Reports' tab section for your use.

Sample -80 Freezer Weekly Temp Graph: (no alarms)
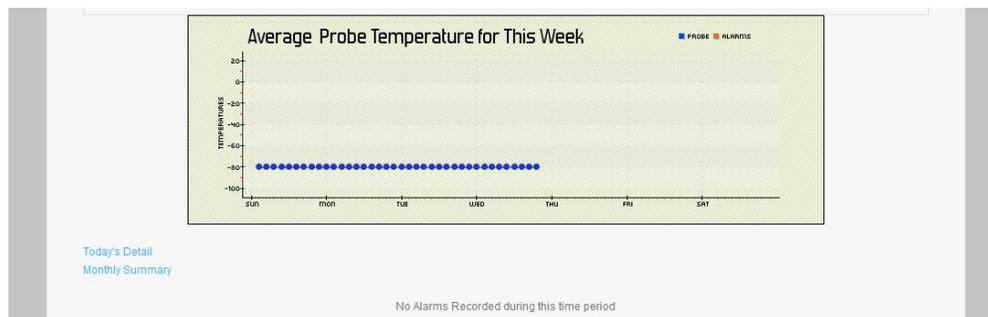
Sample LN2/ Analog Input Daily Temp Graph: Red dots indicate alarms. The alarm summary is listed below graph with the high and low temps of alarm period, including start and end times of alarm.

Alarm Start	Alarm End	High Temperature	Low Temperature
04/02 11:53	04/02 12:11	-72	-122
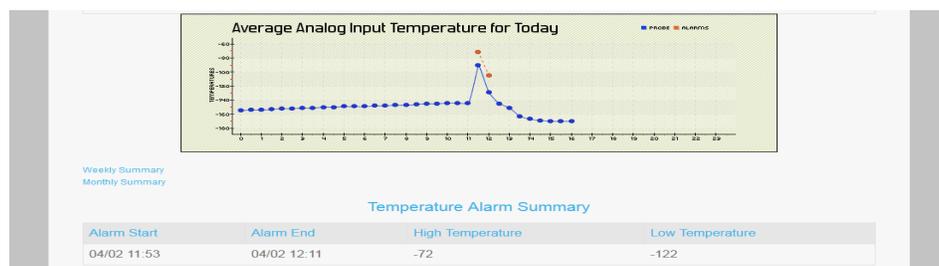
Alarm Output Data & Setting Parameters

Some systems provide alarm contacts that trigger on pre-defined alarm conditions. An example would be an LN2 or Incubator. Minus80 will alert you immediately if these alarms trigger. In most cases, Minus80 does not know 'why' the alarm triggered. In the incubator example below, Minus80 will not be able to determine if the C02 concentration or the temperature caused the alarm. We will however pass along any alarms from that unit to you when the box to 'Report Alarms' is checked. (Normally, the display on the individual unit will indicate the reason for the alarm.) Some LN2 alarms may be able to show temp readings while others only indicate it is in alarm – this depends on setup.

Rm 1226 McCulloch LN2	Rm 1228 McCulloch -20	Room 1226A Sanyo
Analog Input: -195 C	Freezer (IsoTemp)	CO2 Incubator
Last Report: Thu 09:30 EDT	Probe: -18 C	Lower Unit: OK
	Ambient: 32 C	Upper Unit: OK
	Door: Closed (4 Mins)	Last Report: Thu 09:33
	Last Report: Thu 09:31 EDT	EDT

Incubator edit screen: A delay may be set so micro fluctuations do not cause alarms – in this case, the alarm delay is five minutes.

Unit Description:	Room 1226A Sanyo CO2 Incubator	Disable All Unit Alarms for 24 Hours
Device Description:	Lower Unit	
Report Alarms [?]:	☑	
Alarm Delay (Mins)[?]:	5	

LN2 edit screen: In the two cases below, the LN2 alarms are set the same way as the incubator above and the edit screen is identical – the only exception is that one has a door which is also monitored.

| Big LN2 Common 340B	LN2 Orange Top 440A
Door: Closed (2 Hours)	Analog Input: -137 C
Alarm: OK	Last Report: Thu 09:56 EDT
Last Report: Thu 09:57 EDT	

Due to how the LN2 unit below was set up, we were able to set temp parameters and a recovery time feature for this unit. In this case, the LN2 temp is desired to stay within -200 and -180, but may step outside of those boundaries for 5 minutes before it will go into alarm. This allows any local LN2 alarm to initiate action before starting to send alerts out to those who may not be in the lab at the moment.

| Unit Description:	Rm 1226 McCulloch LN2	Disable All Unit Alarms for 24 Hours
Device Description:	Analog Input	
Report Alarms [?]:	☑	
Low Temperature (C):	-200	
High Temperature (C):	-180	
Calibration Offset (C):	0	
Recovery Time (Mins)[?]:	5	
Alarm Inside this Range:	☐	

How to Set Up Alerts

Minus80 can communicate with you via text, voice call, or email. Each of these communications will indicate the current condition of the monitored unit, and which parameter is alarming. You are able to create flexible alerting rules that Minus80 will use to automatically notify you of alarm events. **You control who is alerted and when**. To set up alerts, follow the steps below:

1. From the home screen, select the 'Actions' drop down list in each Facility. Click **'Edit actions'**.
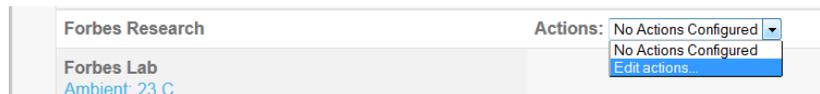
2. From the next screen, click the drop down arrow on the left beside **'Select Action'** and choose what type of alert you wish to set up. A pop-up in the next field under **'Contact'** will tell you what to enter, and then describe 'who' the phone number or text is for under **'Description'**. If the **'Do Not Contact after 10PM'** box is checked, Minus80 will **not** send texts or voice calls between 10PM and 8AM. If an alarm occurs between 10pm and 8am, you will be contacted at 8AM. Emails are always sent, regardless of time. If the **'Ignore'** box is checked, Minus80 will **not** send texts or voice call alerts. (e.g. vacation hold) If you click on **Alert Test**, a test alert message will be sent to verify the proper operation of a text, voice, or email from Minus80.
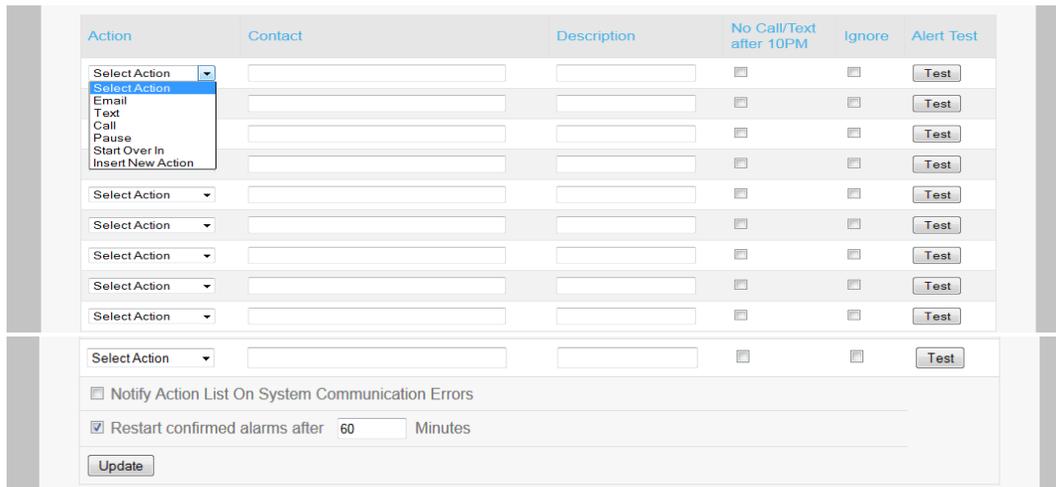
3. **'Notify Action List on System Communication Errors'**: Minus80 will send notification of communication loss and restoral with your site. Check the box at the bottom of the 'Edit Actions' screen to enable or disable this feature for the entire alert list. (This may also be elected from the 'Contact' page for those who have User Admin credentials.)
4. ***'Restart Confirmed Alarms after ___ Minutes':*** Checking this box restarts the alert list after a period of time **IF** 1) a unit is still in alarm and **IF** 2) it has been confirmed. *Important: If this box is **not** checked or number of minutes not entered, NO FURTHER ALERTS will be sent after an alarm is confirmed.*

Alert Field Pop-Ups – Useful Information for Setting Up Alert Lists

- **Email** – *'enter valid email address'*
- **Text** - *'enter phone number with area code'*
- **Phone call** - *'enter phone number with area code'*
- **Pause** – *'enter minutes to wait for alarm to clear'* (You choose to have the system wait before initiating further alerts and to allow the alarm to clear or to allow for confirmation. This can be useful for setting up tiered alerting. Send alerts to one person or group of people, then enter a wait 'x' minutes to allow the alarm to clear and to allow proper some time to respond, then alert another group of people, etc.)
- **Start Over In** – *'enter minutes to wait before starting over'* (You choose to have the system wait before the alert list starts over again from the top. This may be used at the end of your alert list. It will cycle the alert list repeatedly until one of two things happen – someone confirms an alarm by replying to an email or text, or by pressing '1' when they receive a phone call alert message. All confirmations are placed on the web portal and read 'Confirmed By: Name of person') *Important: Unless you select and add 'Start Over In ___ Mins' at bottom of alert list, no further alerts will be sent after the list is completed one time.*
- **Insert New Action** – this places a new slot ABOVE this selection in case you wish to add someone in the middle of the alert list, or forgot to add someone after building your list
- **Remember -- Always click UPDATE at the bottom of the screen to save settings.**

Building an Escalation Scenario

The 'Action List' allows you to create escalation scenarios to make sure alarms are properly handled. After entering a person to alert (or several), you may then specify a **Pause** action. If Minus80 encounters a Pause, it will wait for the specified time for the Alarm condition to clear or for the alert to be acknowledged by one of the alerted people. If the Pause expires before the alarm is acknowledged, Minus80 will alert the next set of devices. You may also use the **'Start Over'** action to wait for a specified time then start the action list over again from the top. Below is a sample of an escalation scenario –

| Text | (804) 229-3410 | Laura text | ☐ |
Email	larmstrong@minus80monitoring.com	Laura	☐
Call	(804) 229-3410	Laura call	☐
Pause	15 Minutes		☐
Text	(804) 502-4604	Brian text	☐
Email	barmstrong@minus80monitoring.com	Brian	☐
Start Over In	15 Minutes		☐
Select Action			☐
Select Action			☐

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Reports & My Account

REPORTS - When you click the **Reports** tab, you will see a list of historical monthly reports for all monitored Units. Simply click on the individual report to view it.

Each view will include average daily ambient temperatures, probe temperatures, and a list of all door opening events for each unit with the elapsed time recorded.

MY ACCOUNT - The **My Account** tab allows you to change your password. Minus80 does not enforce specific password guidelines, but we recommend that you observe standard password guidelines such as using strong passwords and changing your password at regular intervals.
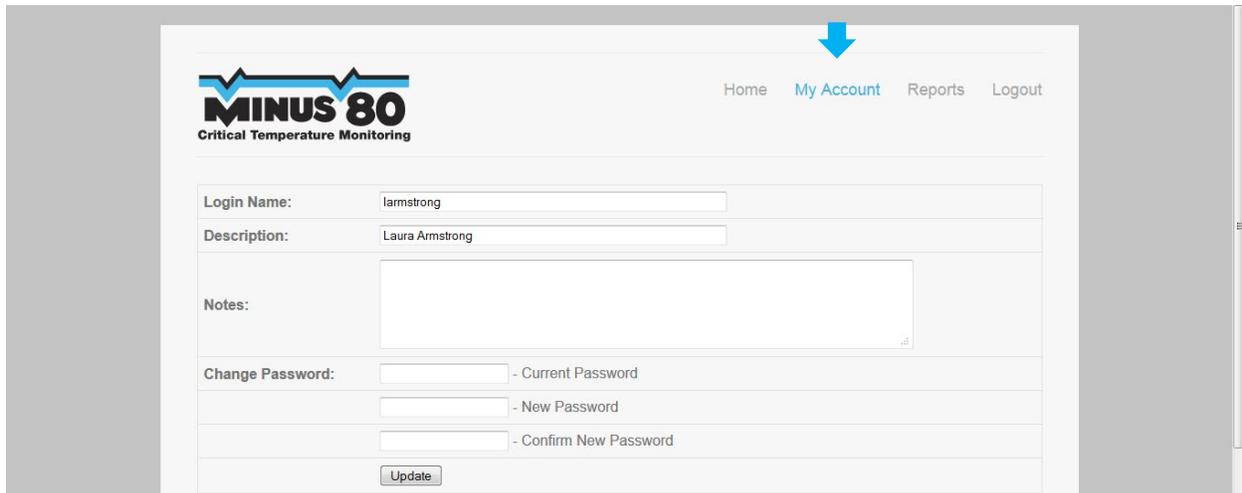
User Admin – Managing your Minus80 System

The Minus80 Monitoring system has a unique login credential called **'USER ADMIN'** for ease in managing your monitoring needs. Users change, freezers move from one lab to another, and new freezers and other storage units are purchased necessitating additional monitoring units from time to time. This purpose of the User Admin login is to make this task simple and allows you to shift freezers from one lab to another, add and delete users, add refrigerators and freezers, and maintain an over-arching view of all facilities/labs for which you are responsible. By adding the few additional headings of *Users, Contact, Facilities,* and *Units* the User Admin is able to self-manage this monitoring system. Below are the features unique to this login:

Logging into User Admin & Status Message -

- When a User Admin logs into the portal at **https://portal.minus80monitoring.com** entering their secure username and password, they will notice a message on the screen:
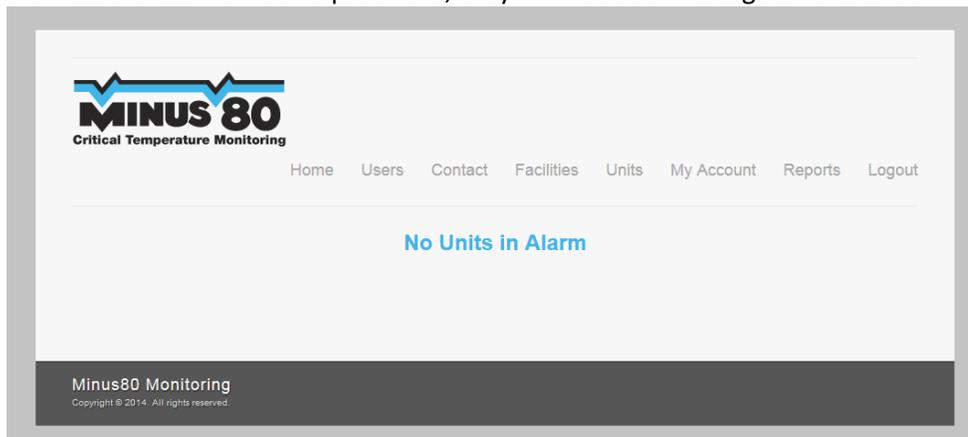
- Someone with a User Admin login usually has multiple storage units in their monitoring system. The login status message enables a 'quick view' of any units in alarm, thus enabling immediate viewing and action, rather than scrolling thru the page to find them.
- If units are in alarm, the message view would be the following with the list of unit(s) currently in alarm, allowing you to clear the alarm from this screen:


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User Admin - Create/Delete Users

- Those with a 'User Admin login' may create new Users. Click **Users** then **Create New User**. You may determine if the new login will have a **'User'** level login or a **'View Only User'** login. Each may have specific views of facilities and units, each with unique alert lists. You simply check the box to assign the appropriate Facilities and select either User or View Only User login level, and click Update.

User Admin - Contact for System Communication Messages-

- The *Contact* heading gives the User Admin a place to enter their contact information to be alerted in the event there is a system communication error and/or communication restoral. Here you may also create a specific action list only for system communication errors.

User Admin – Facility List Tab

- *Facilities* are groupings of units within your view – usually by lab or by area. You have the ability to create, delete, and re-name a Facility in this section which will appear in your main view.
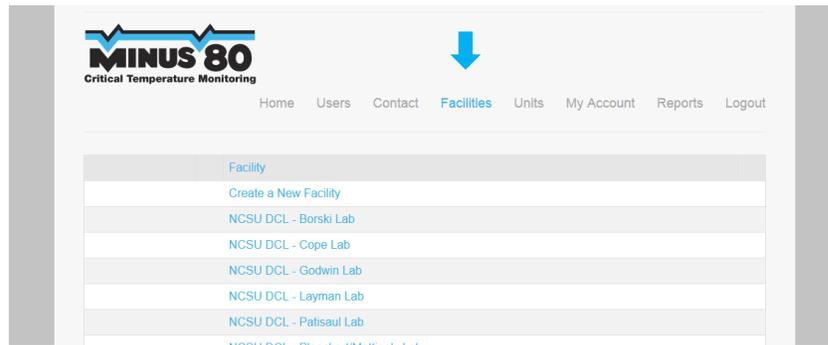
User Admin – Unit List Tab

- A list of individual *Units* within your monitoring system are available to you. You may rename or assign to another facility or grouping.

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