INSTRUMENTS

Powered by Guardhat

Safety Control Center (SCC)
Operator's Manual

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1 Introduction

The Safety Control Center (SCC) is a web-based application powered by Guardhat that works with Guardhat-compatible devices and the Guardhat platform to improve worker safety and productivity. You can access the SCC using the Google Chrome browser. See full system requirements below.

Using Bluetooth communication, RKI's GX-3R Pro connects to the Guardhat app or to a Guardhat Scout, enabling gas exposure data to be sent to the SCC.

The SCC provides safety monitoring and response management for workers using real-time sensor readings, positioning, and tracking. All Guardhat wearable devices, integrated devices, and devices running our mobile apps are monitored by the SCC.

When used with Guardhat smart hardhats, smart glasses and certain tags, the SCC provides two-way communication with your workers for critical and non-critical needs alike.

The SCC includes the following functionality:

- Device and worker status
  - Real-time view of device location and status
  - Latest and critical events
  - Real-time sensor reading visualization
  - One-click evacuation
- Event management
  - Event tracking
  - Web-based notifications
- Geospatial management
  - Geofence zone management
  - Real-time positioning visualization and tracking
- Audio/video streaming and text-to-speech messaging with workers
- Media gallery and management: Audio/video recordings playback and downloads
- Reporting
  - Live events
  - Historical event reports
  - Heat maps using collected data
  - COVID and social distancing compliance reporting
- Administration
  - User management
  - System settings and configuration options

System requirements: For optimal performance, use the Guardhat SCC with Google Chrome v105.0.5195.127 and onwards on computers offering at least 12 GB RAM, 2.4 GHz processing speed, and a microphone and cameral for calling. A network speed of 25 Mbps or greater and access to the Guardhat cloud server via VPN firewall setup on applicable ports is required.

2 Getting Started

2.1 User Access

Admin users can access all areas and functionality of the SCC. These admin users are distinct from **devices**, which can be assigned to a specific worker permanently or assigned to different workers as needed (for example, every shift change). Workers who wear devices can be monitored and tracked within the SCC, but they will NOT have access to the SCC unless individual admin user accounts are created for them.

Typical SCC users include safety and operations managers and supervisors, operations personnel tasked with managing devices, HR representatives, and support personnel. Workers rarely need access to the SCC.

Admin users have the following privileges:

- Adding, disabling, and editing users from the system
- Uploading new sites (maps) to the SCC
- Enabling, disabling, and assigning or reassigning devices
- Creating and deleting blackout, evacuation, and other geofence zones
- Monitoring events management
- Viewing workers' locations and sensor readings
- Viewing, downloading, and deleting media
- Accessing and running reports

NOTE: Due to the wide variety of operations SCC admin users can perform, **we recommend caution before deleting media, disabling users, or performing most functions in the Administration section.** RKI Instruments, Inc. is available to discuss any changes you want to make in these areas.

2.2 Internationalization

The SCC supports internationalization and localization (I18N). These enable local language, date-time, notifications, etc. The SCC currently supports Brazilian Portuguese, English, French, Russian and Spanish languages.

2.3 Device Support

Currently, the SCC application works with the Guardhat Communicator smart hardhat, Scout wearable device, the Guardhat Android and iOS mobile applications, as well as third-party devices from Abeeway, Extronics, Equivital, Kestrel, RKI Instruments, RealWear, Rombit, Siemens, Slate Safety, Vuzix and 3M.

3 Login

1. **Visit the SCC URL** provided by RKI Instruments, Inc. to open the application.
2. When the login screen opens, **enter your username and password** as provided by your system administrator.
3. Then click on the **Login button**.

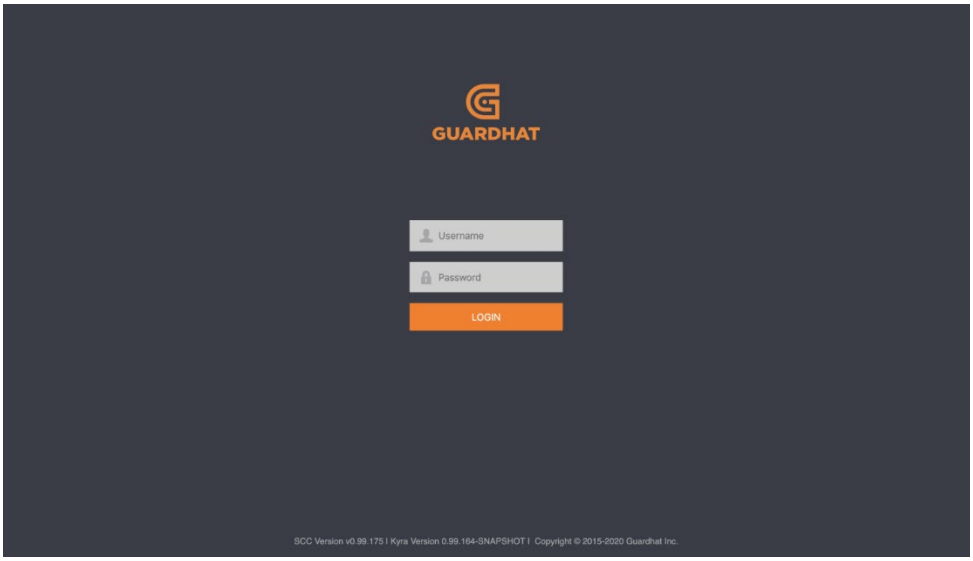

Figure 1: SCC Login Screen

4 The SCC Home Screen and Menu

The SCC offers a simple, intuitive interface for accessing common functionality as well as reports and administrative settings.

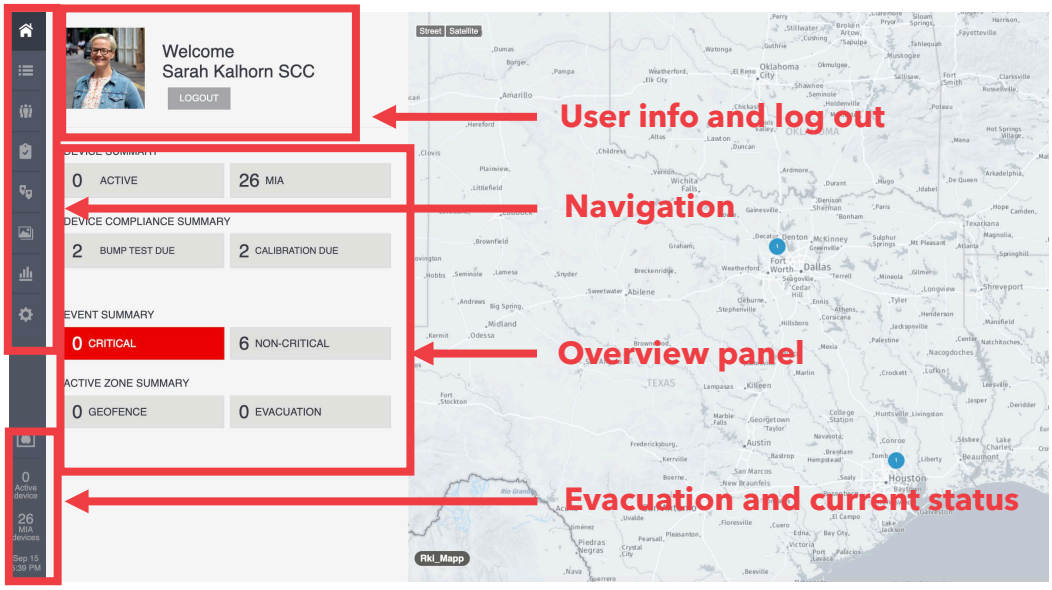

Figure 2: The SCC Home Screen

4.1 The Home Screen

The SCC Home screen, as pictured above, includes a Menu on the left side of the screen, plus a one-click Evacuation button, status of devices, and your localized date and time in the lower left. An explanation for each menu item is provided in the table below.

The information to the right of the menu will vary based on which menu item you open. In the home screen, you will find a summary of devices, events, active geofences, and active devices with real-time location overlaid on your site map. Click on the buttons in the Worker Summary, Device Compliance Summary (only visible with the Gas Detection & Analytics solution), Event Summary, or Active Zone Summary areas to drill down into the details.

The default location displayed on the map can be changed. Maps may be viewed in either street or satellite view. Click on the "Street" or "Satellite" buttons located in the top left corner of a map to switch the view.

By clicking on any of the active workers shown on the map – denoted by the green dot – you can view worker information, including any provided identifying information such as name, supervisor, or department, as well as the device by which they are connected to the Guardhat platform, battery status of that device, and any associated sensor readings. You can also access buttons to make an audio or video call to that worker, directly from the home screen.

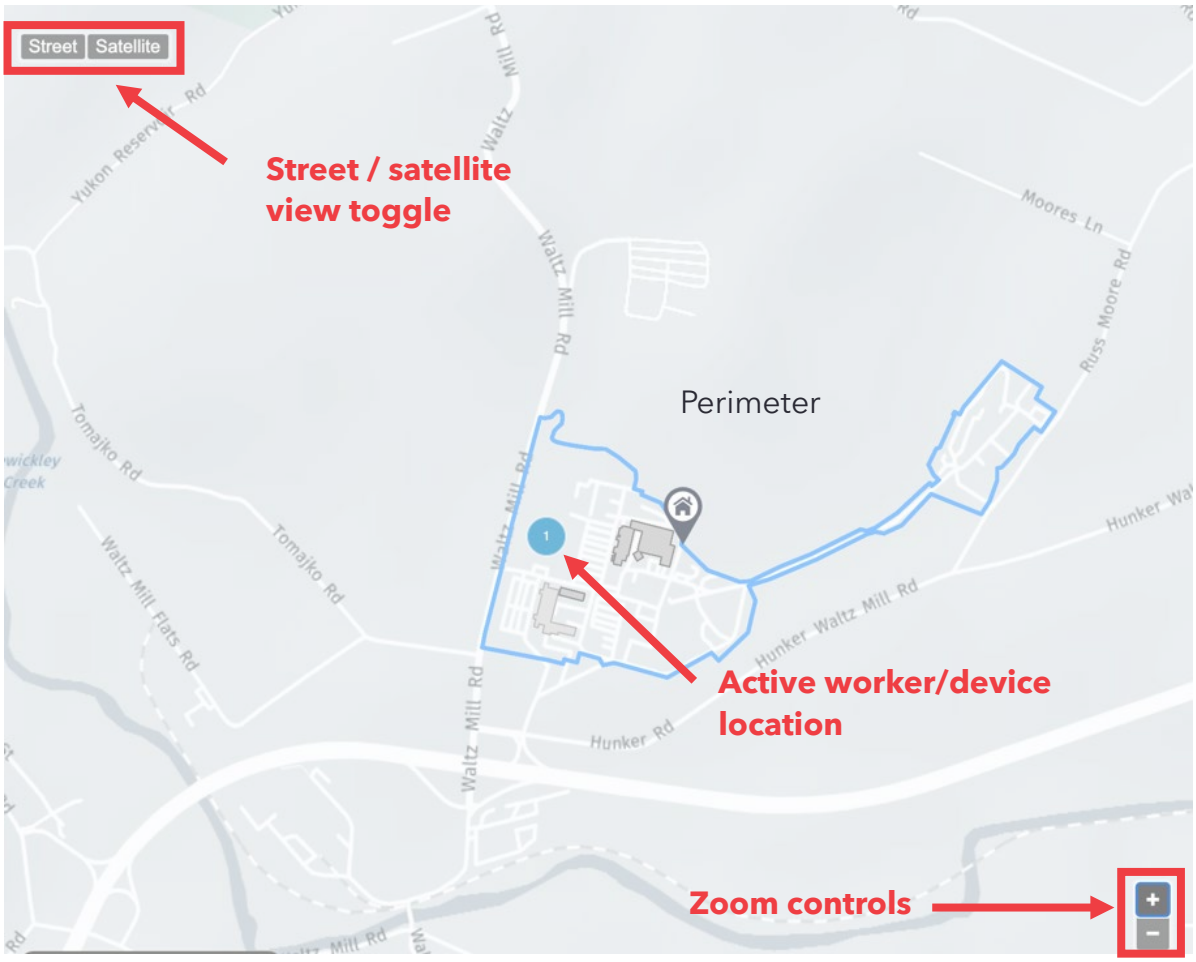

Figure 3: Home Screen Map Components

You can zoom in or out of the map as needed. The map can also display indoor and multi-floor location detail if that information has been uploaded into the SCC database. Check with RKI Instruments, Inc. to discuss the level of detail in your site map.

4.2 Navigation Menu Elements

SECTION	DESCRIPTION
Home 	The Home screen displays your user information along with device, compliance, event, active Zone summaries, and a location map. See the Home screen section of this manual for more information.
Events 	The Events screen displays a list of critical and non-critical events. Once an event is resolved, it is removed from the Events screen and available in a variety of reports. See the Events screen section of this manual for more information.

Compliance 	The compliance screen is available if you are utilizing the Gas Detection & Analytics solution to show a list of devices with a high-level summary of their status. For connected gas detection, the device serial number, if the devices are currently online, and type of device connected is shown as well as the calibration and bump test due dates. Overdue dates are shown in red. All others are shown in green. Finally, alerts to any physical problems with the device are noted in the device health column. See the Compliance screen section of this manual for more information.
Workers 	The Workers screen lists all wearables and apps assigned to workers. Workers with currently active devices are highlighted to indicate their "online status." This screen also enables you to send text-to-speech messages and request video or audio calls with active workers. See the Workers screen section of this manual for more information.
Zones 	The Zones screen enables you to view, edit, and create geofences, including Blackout, Evacuation, Restricted Work zones, and more. See the Zones screen section of this manual for more information.
Media 	The Media screen stores all images, video, and audio recorded by your workers and devices. You can view and download media here. See the Media screen section of this manual for more information.
Reports 	The Reports screen covers recent events and historical information based on KPIs, Zones, locations, sensor readings, and more. SCC reports can be exported to third-party business intelligence software to produce customized reports that include data from other systems. See the Reports screen section of this manual for more information.
Administration 	The Administration screen lets you add, modify, and disable users, devices, vehicles, and beacons. Please contact RKI Instruments, Inc. before changing these settings. See the Administration screen section of this manual for more information.
Evacuation 	The Evacuation shortcut enables the creation and initiation of an Evacuation alert. This feature is also available within the Zones screen. An Evacuation alert can be raised for the entire work site or any subsection of it. See the Evacuation Alert section of this manual for more information.

4.3 Common Terms

- **BLE beacon** – A Bluetooth low-energy beacon (transmitter) that can help establish permitters and zones (geofences) in three dimensions or areas where Wi-Fi or GPS cannot provide the level of accuracy needed.
- **Device** – A Guardhat product (or a third-party, integrated product) or app used by workers or industrial equipment that communicates with our central Guardhat platform and other devices for communication, location, and tracking purposes.
- **Events** – Significant data points received from a Guardhat wearable or integrated third-party device that are made available in the SCC. Events can be either non-critical or critical.
- **Evacuation** – A zone where workers are not permitted. You can evacuate a zone at any time, sending alerts to workers in that zone to leave immediately and direct them to a specific muster point or Safe zone.
- **Geofence** – A virtual area of a physical location established by Wi-Fi, GPS, BLE beacons, or similar methods. *Geofences are referred to as zones within the SCC.*
- **Guardhat App –** The Guardhat iOS or Android apps, compatible with phones and downloadable via the App and Play stores, respectively. A software subscription is required for use.
- **Telephony** – The technology to conduct video and audio calls between the SCC and Guardhat wearables without requiring telephone numbers or cell phone carriers.
- **UWB** – An ultra-wideband radio technology beacon that can also help establish perimeters, zones, and precise user or device tracking.
- **Wearable** – A Guardhat device (or a third-party integrated device) worn by a worker.
- **Zones** – Areas within a perimeter where you and/or RKI Instruments, Inc. can establish a variety of geofences with conditions of restriction or access.
- **Bump Test** - A bump test is a process where you expose a gas sensor to a known concentration of gas that is greater than the alarm set points. If everything is working properly, the gas detector will go into alarm mode.
- **Calibration Test** – A calibration test must be done to ensure that a sensor is providing an accurate numerical reading. For gas detection, the sensor is checked against known gas concentrations at several levels and is adjusted to match those values.

5 Events Screen

Events are significant data points received from a Guardhat wearable or integrated third-party device that are made available in the SCC. Events can be either non-critical or critical.

Non-critical events are the most common. These include information such as “device turned on," "low battery," “last known location,” etc. You can see a snapshot of non-critical events in the “Event Summary" area of the Home screen and in the Events screen.

Critical events indicate that one or more workers may be at risk and **should be investigated promptly**. (See the Workers screen to learn how you can contact a worker if a critical event occurs.) A critical event will be one of the following:

- Geofence violation, when a worker enters or leaves a restricted zone, or a site Evacuation
- Fall detection when a worker appears to have fallen
- Worker down, when a worker does not move in more than 15 seconds following a fall detection
- SOS, when a worker has indicated they need assistance
- Worker hazard, when an environmental and/or biometric parameter has been breached, such as, elevated heart rates combined with extreme temperatures, or O_2 falls below a setpoint
- Collision avoidance and proximity detection, when a moving vehicle or machine comes too close to a worker, or when workers are too close, respectively

Like non-critical events, you can see a snapshot of critical events in the "Event Summary" area of the Home screen and in the Events screen.

All events in the list to left of the menu are currently active. Once the event is resolved, it is removed from the Events screen and is available via the Reports screen.

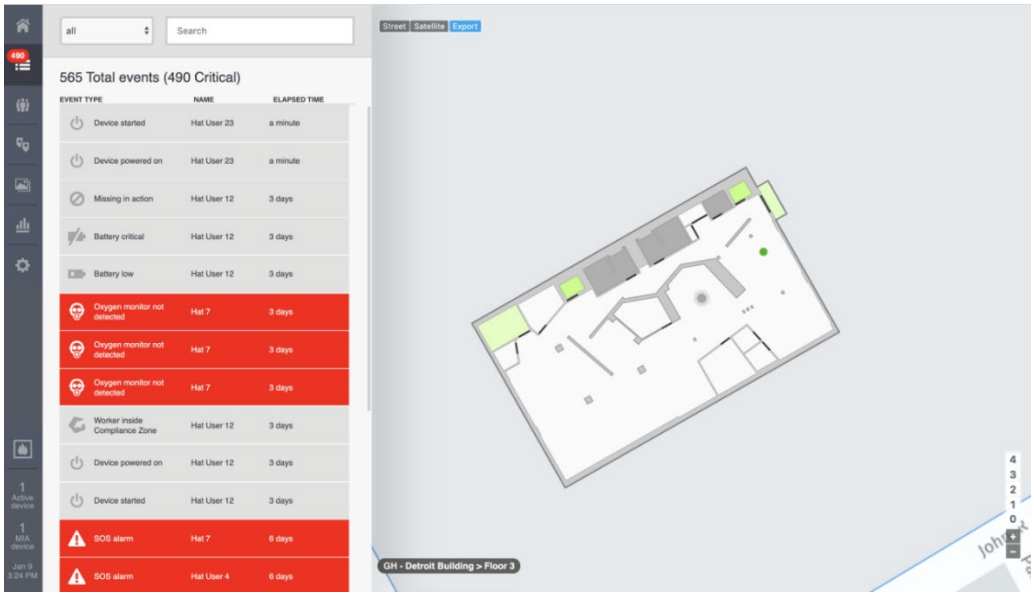

Figure 4: Example Events Screen

5.1 Navigating the Events Screen

To learn more about a specific event, simply click on it. This will open the Event Details screen.

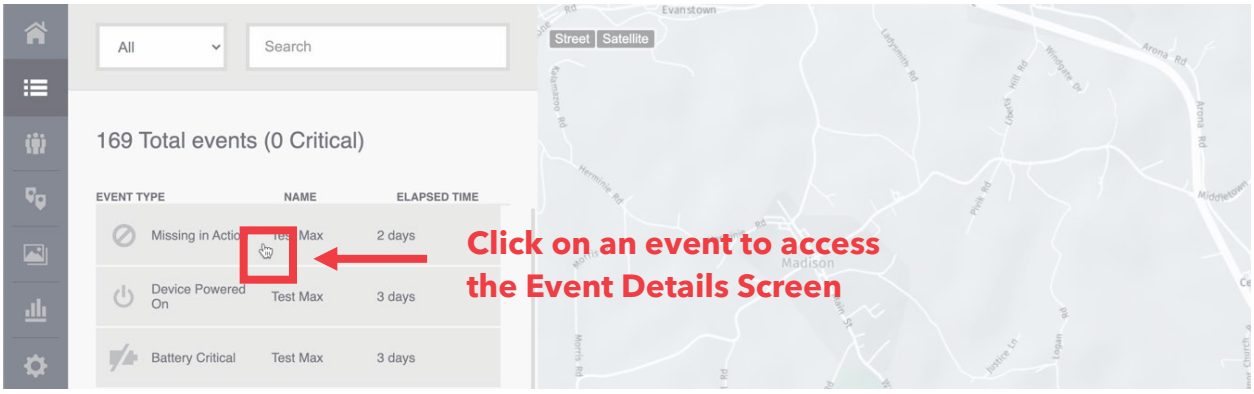

Figure 5: Accessing the Event Details Screen

From the Event Details screen, you can view:

- The location of an event
- The worker/device profile, which can include associated devices, sensor readings, events, and personally identifiable information (PII) – such as name, photo, role, location assignment, et. – that you find helpful and necessary as well as the ability to contact the worker involved
- Event comments
- Nearby devices/workers, as well as the ability to contact nearby workers
- Current sensor readings
- Event log of recent previous events

This information empowers you to review the situation and decide the best course of action. To hear or see the worker's perspective, you can request a video or audio call in the top right of this area. The event log will record your interactions with the worker for retrieval and analysis, but it will not record any video or audio calls.

If you would like to add other actions to this area, such as "Call Emergency Services," ask RKI about these options. You can also contact nearby workers to help assess a situation or intervene.

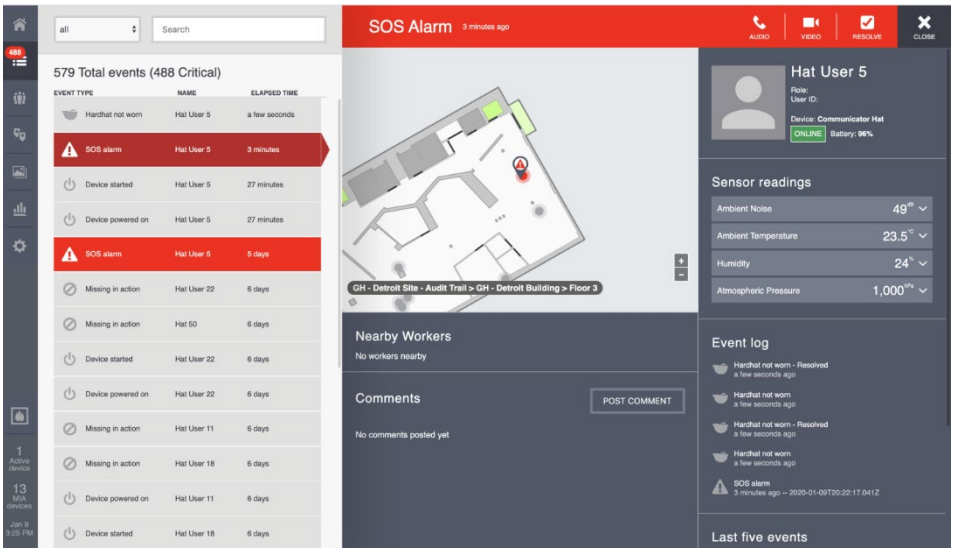

Figure 6: Example Event Details Screen

6 Workers Screen

The Worker's screen displays all workers assigned a device. It also provides information for devices assigned to equipment (such as a forklift). You can easily contact workers with text-to-speech messages or video and audio calls from this screen.

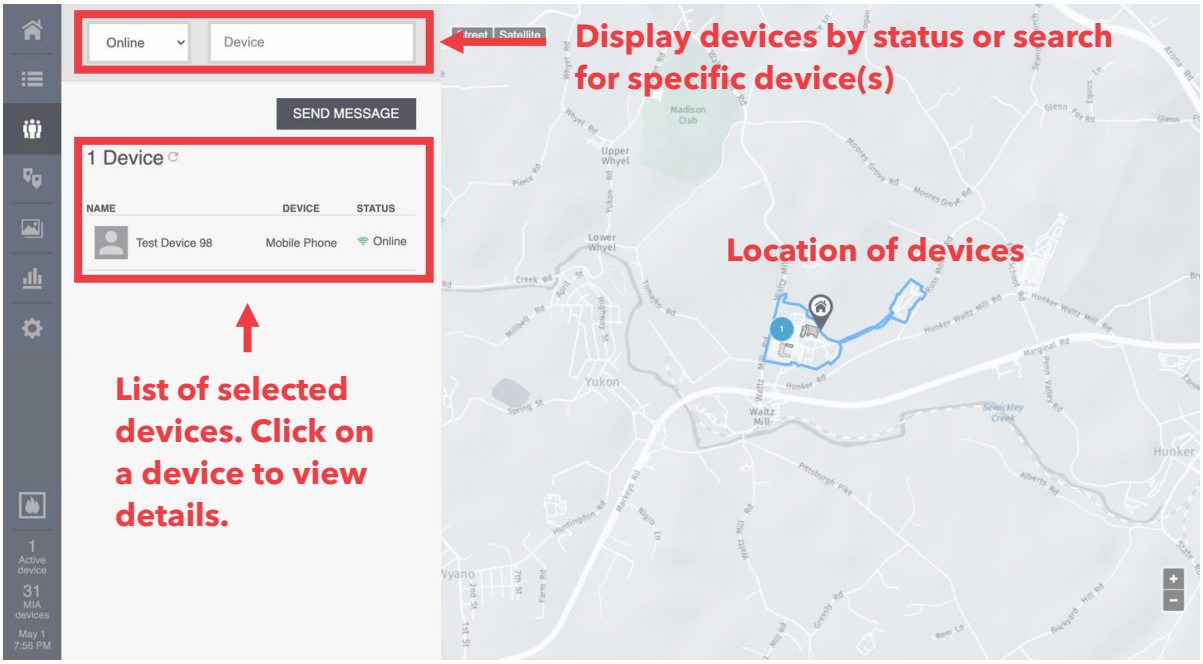

Figure 7: Example Worker Screen

Currently active workers who have an Online status are highlighted. You can also click on the "Send Message" button to select Online workers you wish to send a text-to-speech message.

6.1 Worker and Device Location and Tracking

The SCC Workers screen displays current and last known locations for all devices within the perimeters set up in your account. The only locations not displayed are when workers enter Blackout zones. These are typically areas where workers should not be monitored, such as restrooms, locker rooms, or break areas.

If you would like to closely monitor workers and devices, you can enable **tracking.**

Tracking will follow a device wherever it travels, except in Blackout zones. Your map view will adjust to show a device with tracking enabled. Should a device move outside your perimeters without tracking enabled, you will not see its current location. To determine if tracking is appropriate for your site or project, contact RKI Instruments, Inc. to discuss options.

The SCC provides several different location status options for devices in the Workers screen, including if devices are tracked or not. This color-coded system includes:

Tracked – Any device location status surrounded by this black square is tracked.

Online – Real-time location information, and confirmation that the device is receiving and sending data.

Online with Last Known Location – The location is based on the last data transmitted and received from the device. The SCC has not communicated with the device continuously for more than 15 seconds and up to 2½ minutes.

Missing in Action (MIA) – The SCC has not communicated with the device in 2½ minutes or longer and will display the last known location.

Critical Alert – This worker is experiencing one or more unresolved critical alerts. This red circle may appear around an Online (green), Online with Last Known Location (yellow), or MIA (grey) indicator.

6.2 Navigating the Workers Screen

To learn more about a specific worker or device, simply click on it. This will open the Worker Detail screen.

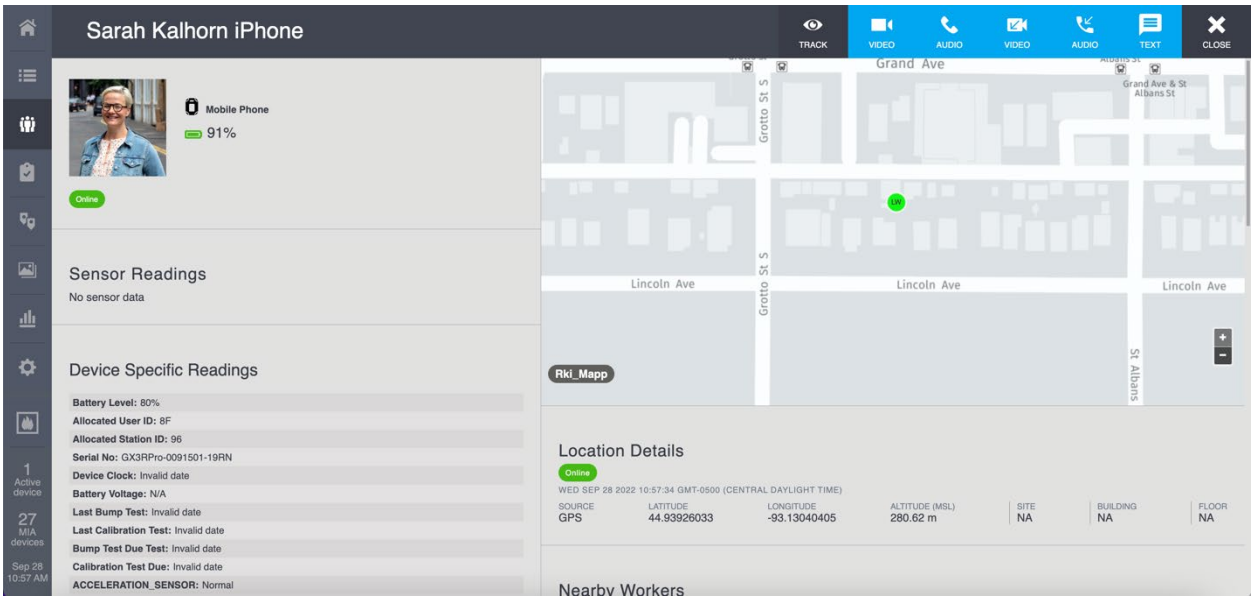

Figure 8: Accessing the Worker Detail Screen

Within the Worker Detail screen, you will see a variety of information, including:

- Worker information, including role, user ID, and as much personally identifiable information (PII) as you find helpful and necessary
- Ability to start or request a video or audio call
- Text-to-speech messaging
- Device type
- Location status
- Sensor readings
- Call history
- Event history

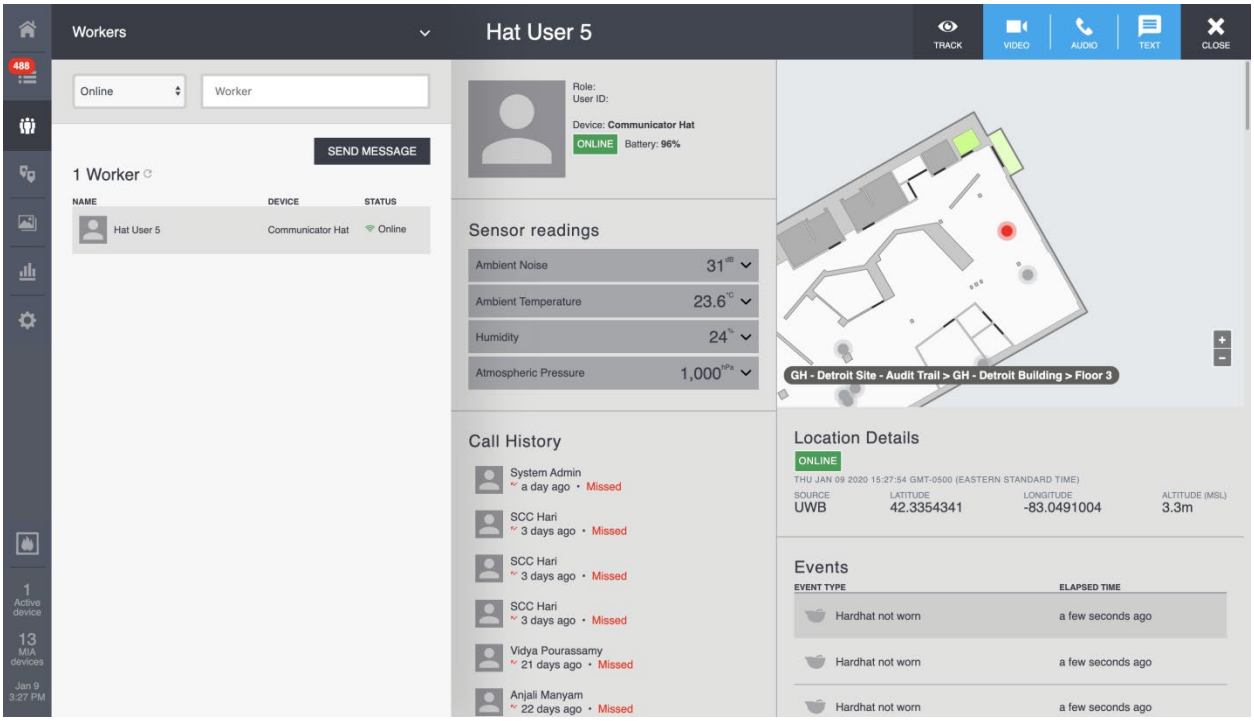

Figure 9: Example Worker Detail Screen

6.3 Sending Text-to-speech Messages from the Workers Screen

From the Workers screen, you can send a text-to-speech message to:

- A single worker
- Multiple workers
- Workers assigned to a location, physically present at a location, or both
- All workers in your account

Location-based messaging offers flexibility based on your communication needs.

To Worker. If your communication matters to a specific worker or workers regardless of where they're currently located, this option ensures those who need the message receive it. For example, you may want a group of workers currently working at multiple job sites to know about a meeting in the middle of the shift for a change in the day's operations.

To Location. If your message pertains only to workers assigned to a location, this option is ideal. For example, you need all workers assigned to Job Site A to complete an on-site administrative task that differs from workers assigned to other locations.

To All Workers. If a message should be received by all workers regardless of their current or assigned location, this option provides the widest coverage option. For example, you need to communicate a change that every worker should be aware of immediately.

When you are ready to send your message, take the following steps:

From the Workers Screen

1 Click on the "Send Message" button.
2 Select the desired Worker, Location, or All Workers option.
3 **Type your message** in the Text field (maximum of 100 characters).
4 Click on the "Send" button.

From the Worker Detail Screen (one worker only)

1 Click on the "Text" icon located in the upper right.
2 Verify the Worker information is correct.
3 **Type your message** in the Text field (maximum of 100 characters).
4 Click on the "Send" button.

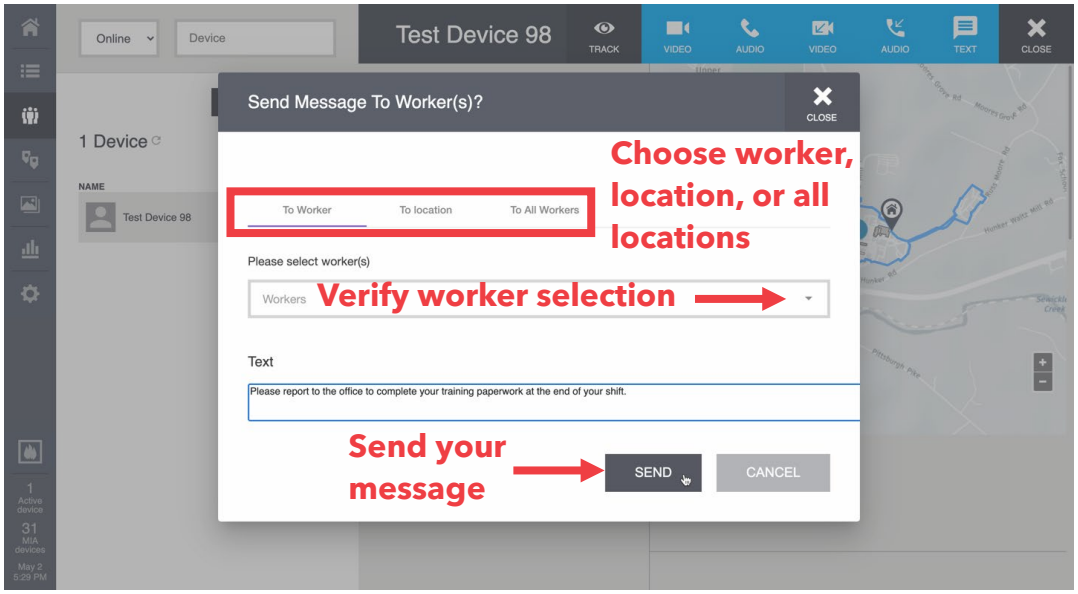

Figure 10: Sending a Text-to-speech Message

NOTE: Text-to-speech messages are **not recorded** and will not be available in the Media screen.

6.4 Placing Video or Audio Calls from the Workers Screen

Certain Guardhat and Guardhat-compatible devices can receive and initiate audio and video calls. These devices must be online to place or request audio or video calls. **Workers must accept the audio or video call before the Guardhat platform can access a device's microphone or camera.**

Each SCC user can participate in only one call at a time. Currently, you cannot place "conference calls" (video or audio calls to multiple devices). Microsoft Teams integration is underway.

When you are ready to place an audio or video call, take these steps:

1. Open the desired Worker Detail Screen.
2. To place a call immediately, click on the **blue "Video" or "Audio" icon**. The worker will need to accept the call on the device.
3. To request that a worker call you at their convenience, click on the **blue "Video" or "Audio" callback icon that includes a downward left-pointing arrow.** The worker will receive an alert to call you.

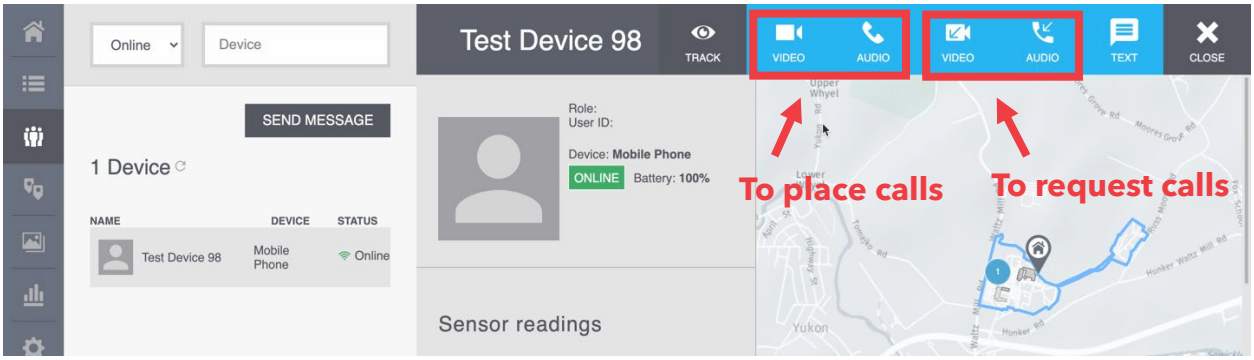

Figure 11: Placing or Requesting a Call

NOTE: Video and audio calls **cannot be recorded** within the SCC and will not be available in the Media area.

7 Compliance Screen

The compliance screen provides a filterable list of all devices as a one stop look at compliance status of connected gas detector devices. By ensuring that the device has been calibrated and tested, the SCC and worker can be sure that the device is working properly, and their devices will alert them, and others, to environmental hazards in the workplace.

The compliance screen is available to the SCC operator and shows a snapshot of the devices connected, by serial number, and the status of their devices. There are drop menus which allow filtering by bump/calibration due dates, device health or connectivity status.

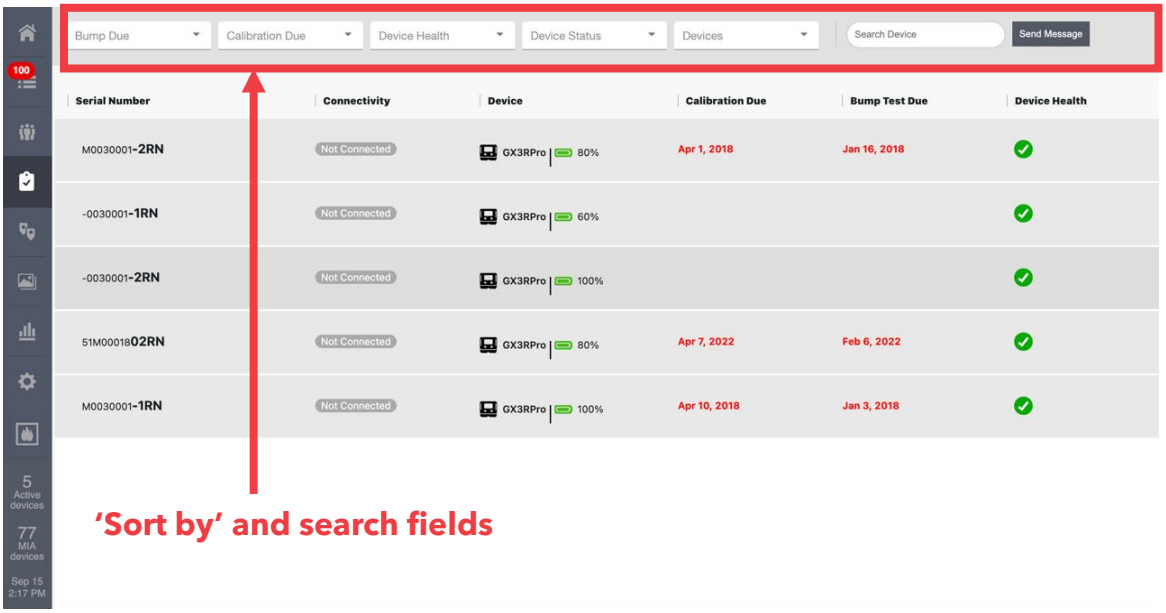

Figure 12: Compliance screen

Calibration due dates are provided as well as the device name. If a device is beyond its required calibration due date, the date will be listed in red. Devices that are currently compliant will have dates listed in green. Clicking on the individual device brings up the detailed compliance screen shown below showing a history of the users connected to those devices, the last date connected, as well as their supervisor and department (if provided) to allow the administrator to take action to ensure compliance.

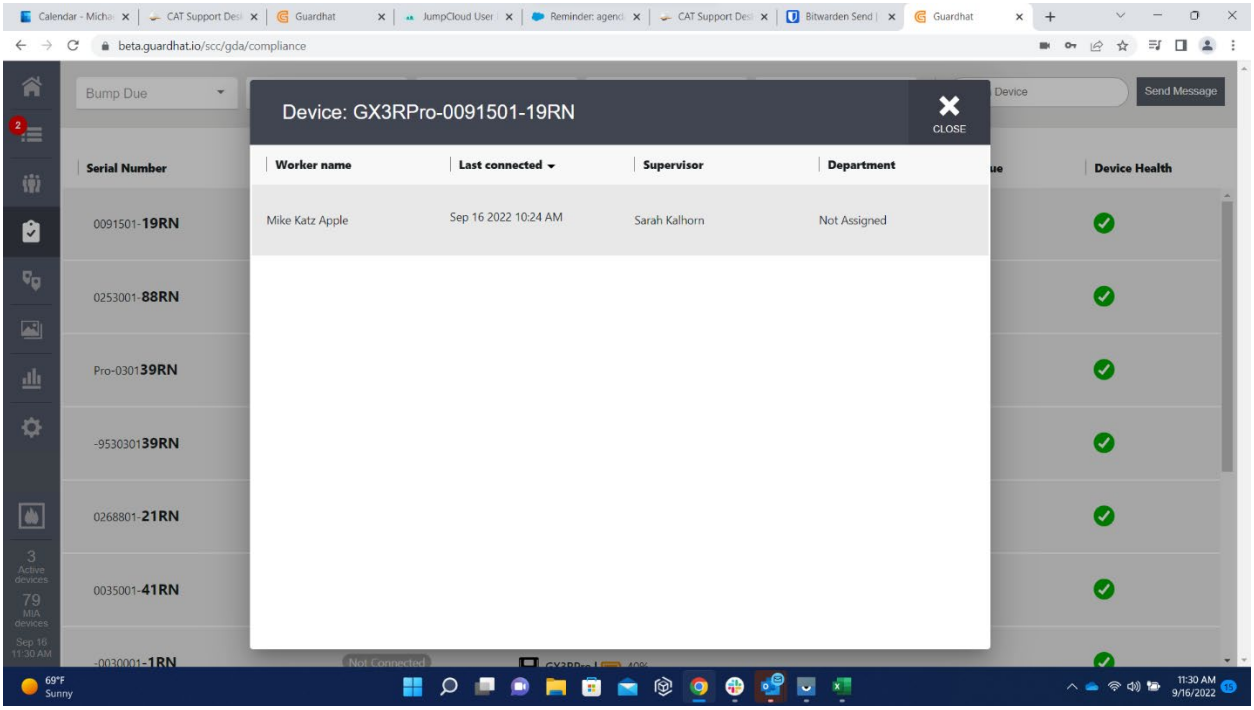

Figure 13: Device compliance detail page

8 Zones Screen

The Zones screen provides a list of geofences within the perimeter of your job site. You can access, edit, and create a variety of geofences, which are virtual areas of a physical location established by Wi-Fi, GPS, BLE beacons, or other similar methods.

Zones offer distinct functions, such as areas where workers are permitted, where monitoring is forbidden, and where workers should evacuate from in case of an emergency.

Zones also serve as a foundation for compliance, enabling you to run reports showing worker locations, violations of zones, etc. For this reason, certain elements of zones are not available for editing to prevent altering history and compromising the integrity of reports.

In cases where workers are in areas with poor connectivity, offline geofencing activates. In cases where there is no connectivity, geofence information is stored locally on the device and uploaded the next time it connects.

Even if a device loses connection, the device retains zone perimeters and rules. Devices can communicate with each other without Wi-Fi or BLE access, ensuring workers are alerted if they violate proximity warnings for social distancing guidelines, hazardous area entry, PPE or permit required areas, or similar preset zone-based rules.

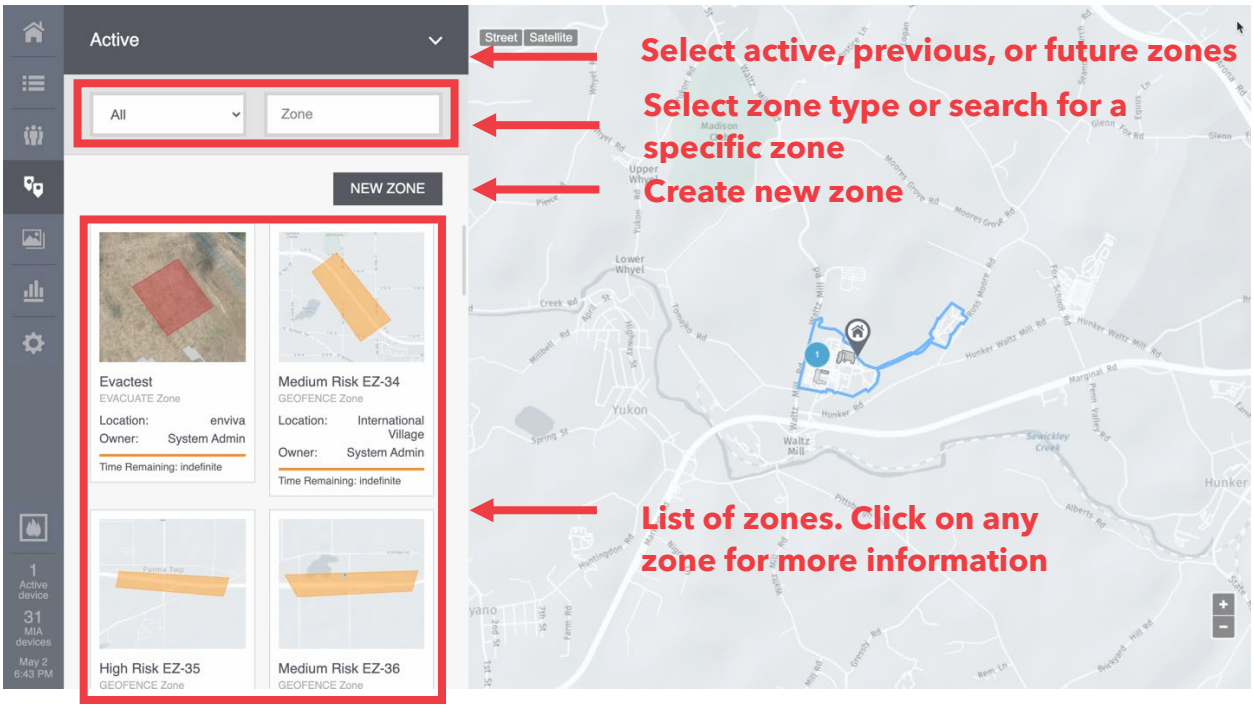

Figure 14: Example Zones Screen

8.1 Types of Zones

Currently, the SCC offers the following zone options, color coded as noted below:

- **Geofence** (orange) – A flexible zone option that lets you set start and ending times for when workers are permitted, as well as which type of workers are permitted in this zone.
- **Blackout** (dark grey) – This zone does not monitor workers when they enter it. This option is most often used in areas where workers' privacy outweighs their exact location, such as locker rooms or break areas.
- **Evacuation** (red) – No workers are permitted in this type of zone. You can establish an Evacuation zone at any time, including in an emergency when a normally permitted zone must be evacuated.

- **PPE Compliance** (Communicator only, blue)– You can select compliance parameters, such as proper hard hat use, gas monitors, or fall-protection harness. This zone only works for those wearing a Guardhat Communicator smart hardhat.

Display-only geofences: **Work** (yellow), **Risk** (light grey), **Danger** (red) and **Safe** (green):

These Geofences work to highlight sections of the map for the SCC admin to VIEW-ONLY. No alerts are issued for entry into these zones, and they do not appear in zone reports. Rules-based alerts are currently being considered. If you have use-cases for these or other zones, please submit them to apps.team@rkiinstruments.com.

The Safe zone can be and is used to remotely monitor mustering after an evacuation or event. Workers in the Safe zone are automatically counted in a running tally within that specific zone screen, listed by name/image, and can be called with a single click when you hover over their name/image.

Zones can be assigned to geofenced areas indoors and outdoors. A building can constitute a zone, as can floors within a building.

8.2 Navigating the Zones Screen

To learn more about a specific zone, simply click on the desired zone in the left portion of the screen.

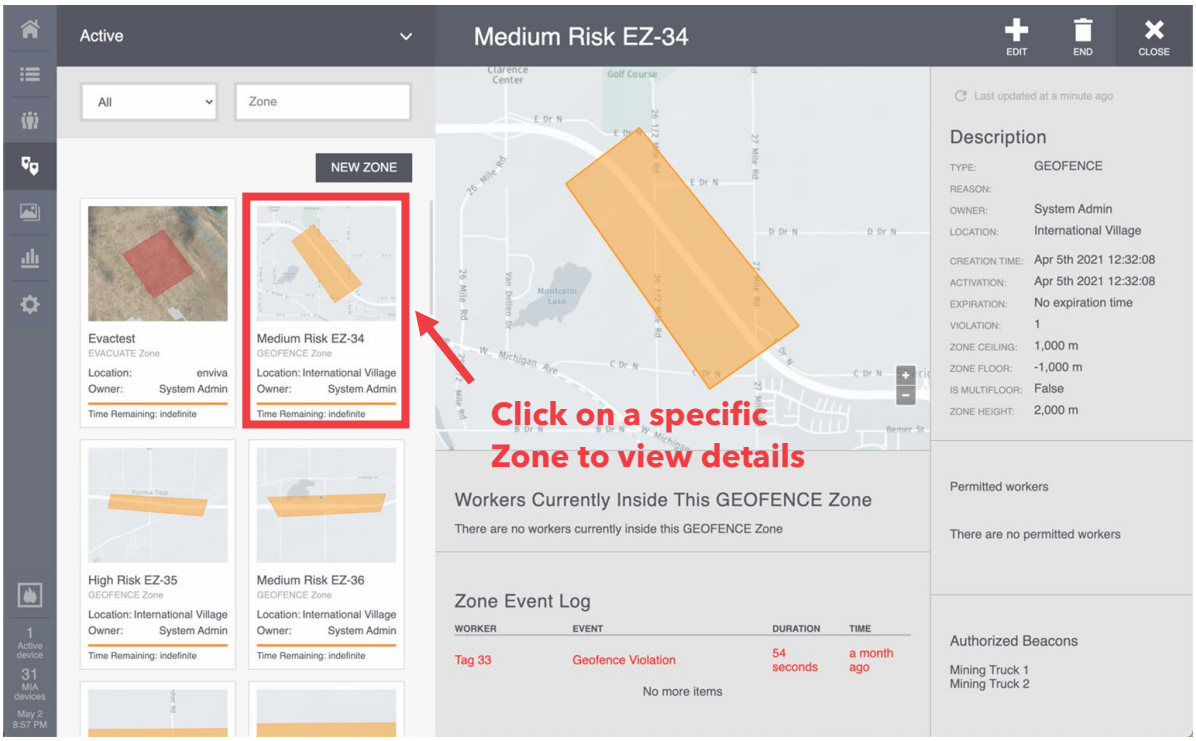

Figure 15: Navigating the Zones Screen

Within the Zone Detail screen, you can access information such as:

- Workers currently inside this zone
- Zone event logs, including geofence violations
- Zone type and location date
- Zone end time (after which workers are or are not permitted)
- Creation and activation times
- Permitted workers (the types of workers, or specific workers, allowed in a zone)
- Authorized beacons that enable geofencing for vehicles, machinery, or equipment

8.3 Editing an Existing Zone

If you need to modify a zone, take the following steps:

1. From the Zone screen, click on the **zone you want to edit.**
2. In the Zone Detail screen, click on the **"Edit" icon located in the upper left.**
3. Make the **modifications you want**, including the title, end time, permitted workers, and authorized beacons.
4. Click on the "Confirm" button.

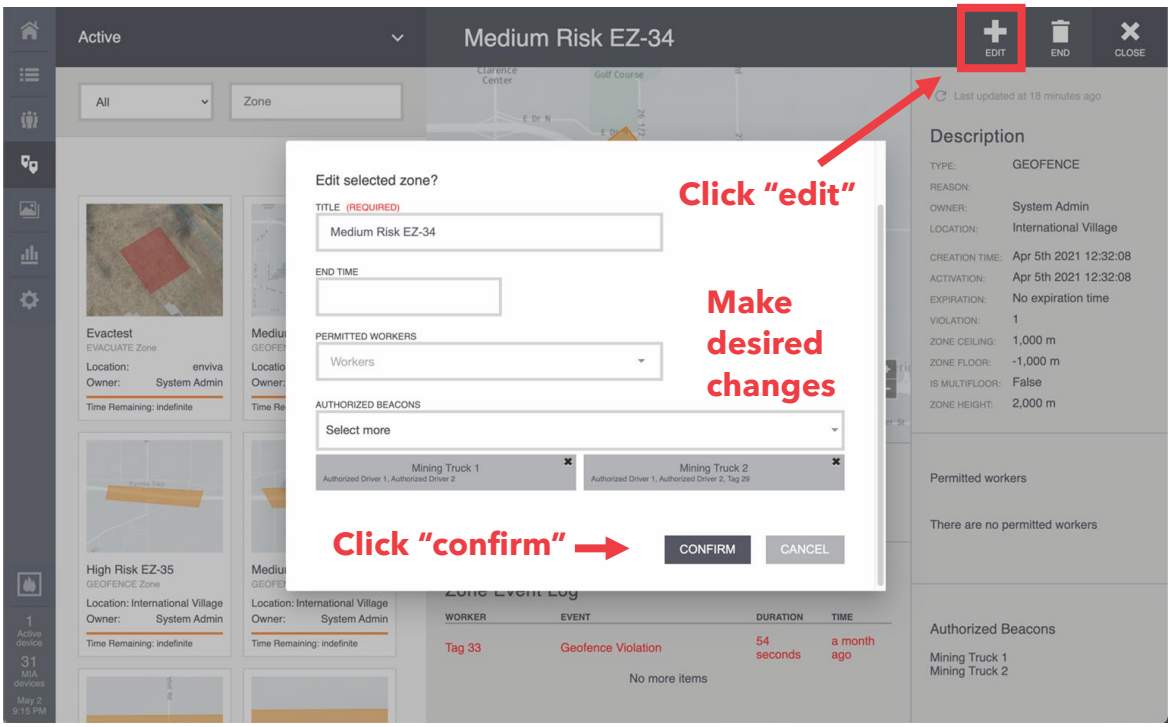

Figure 16: Editing a Zone

NOTE: Certain fields of a zone cannot be edited. This is to keep reports historically accurate. For example, you cannot end a zone before the current time.

8.4 Creating a New Zone

You can create a zone within your established perimeter. However, geofence areas and other parameters require precision. **Please only create zones after onboarding and training from RKI Instruments, Inc.** This training will ensure these zones are created with the information and tracking needed for successful application.

If you are ready to create a new zone, follow these steps:

1. From the Zones screen, click on the "**New Zone" button.**
2. Select the **type of zone** you want from the drop-down menu.
3. **Enter a title** for the zone you're creating.
4. If applicable, select Start and End times.
5. If needed, make your desired selections from the "Permitted Workers" and/or "Authorized Beacons" drop-down menus.
6. Choose a site from the "Site Selection" drop-down menu.

7 If applicable, select a building from the drop-down menu.

8 Click on the “Activate” button.

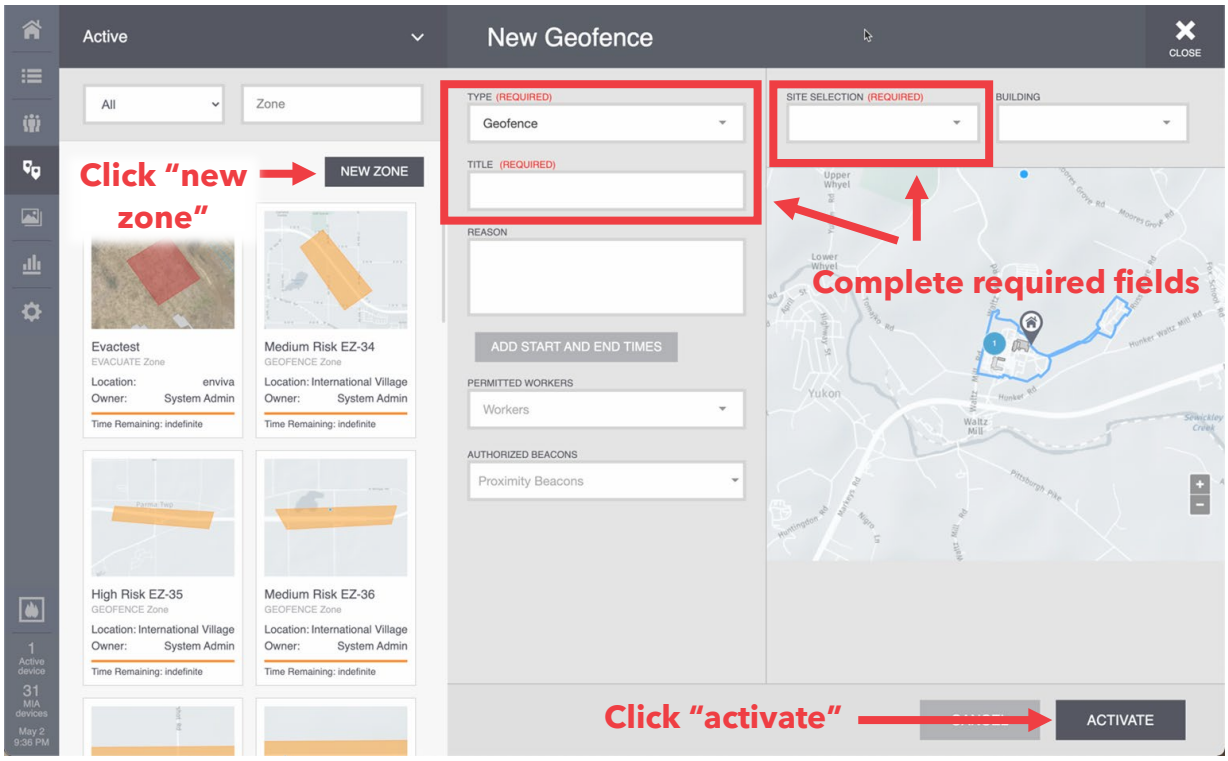

Figure 17: Creating a Zone

8.5 Activating and Ending an Evacuation Zone

Evacuation zones are critical to worker safety. From the SCC, you can initiate an Evacuation zone for the entire work site or any part of it.

Once you activate an Evacuation zone, any workers in that zone will be instructed to leave immediately. You can send a text-to-speech message to these workers, directing them to a Safe zone or mustering point.

Workers will also receive a do-not-enter alert if they approach an Evacuation zone. Based on the device, the evacuation message format may be haptic, visual, audio, or text, but the meaning and directives remain the same.

We recommend you establish one or more Safe zones in advance so you’re able to easily send a text-to-speech message informing workers where to go during an evacuation.

If you are ready to **create and activate an Evacuation Zone**, follow these steps:

1 From the Zone screen, click on the **“New Zone” button and select “Evacuation” from the Type menu.** Or you can click on the “Evacuation” icon located in the bottom right of the menu.

2 **Enter a title** in the “Title” field.

3 If applicable, enter information in the “Reason” field and select the appropriate beacons in the “Authorized Beacons” drop-down menu.

4 Choose the site from the “Site Selection” drop-down menu.

5 Click on the “Activate” button.

6 If you choose to instead click the “one-click” evacuation icon on the lower left of the menu, the entire site will be the Evacuation zone.

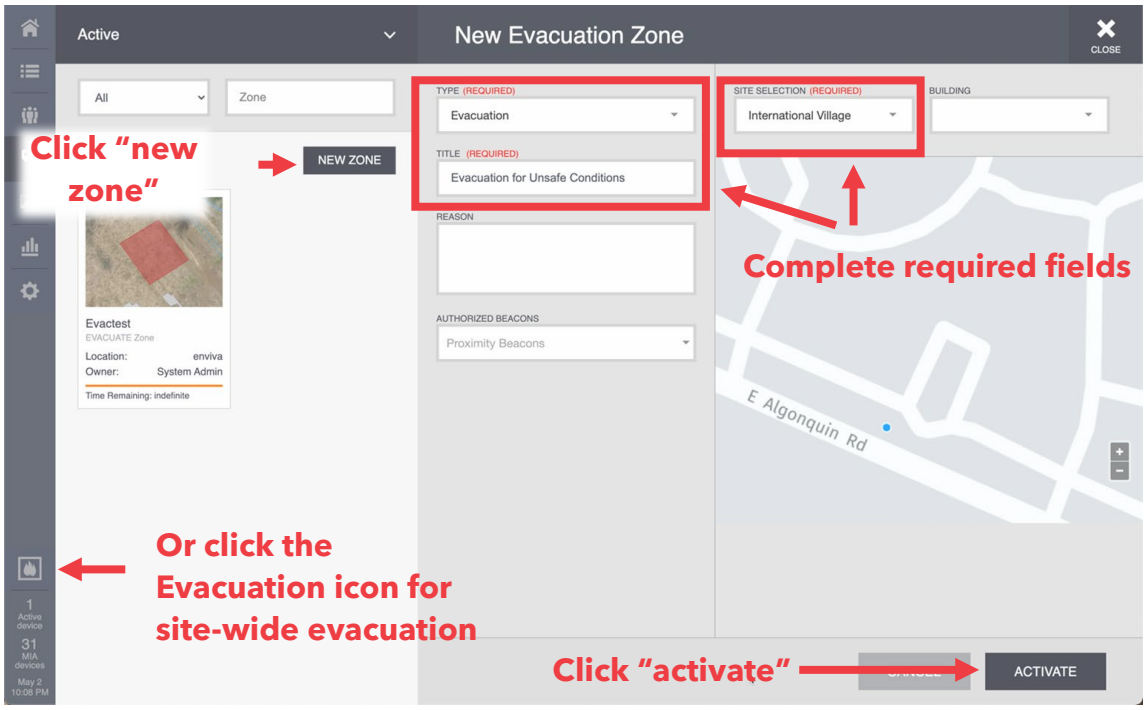

Figure 18: Creating and Activating an Evacuation Zone

NOTE: When you activate an Evacuation zone, workers will be notified to leave the zone immediately.

Once an evacuated zone is safe for workers to access, complete these steps to **end the Evacuation zone:**

1 From the zone Screen, click on the **activated Evacuation.**

2 Click on the "End" icon located in the upper right.

3 Click on the "Confirm" button.

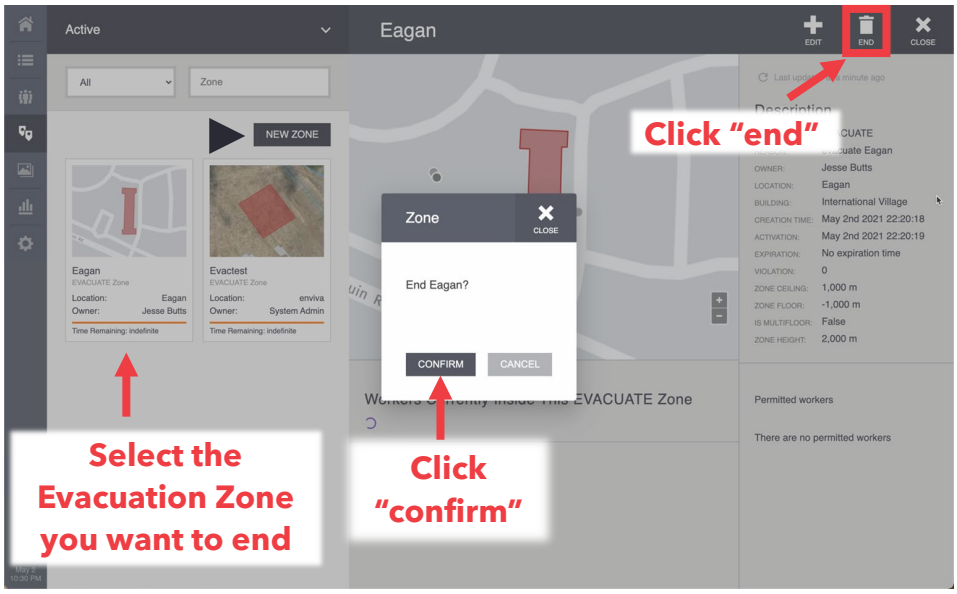

Figure 19: Ending an Evacuation Zone

9 Media Screen

The Media screen shows all images and audio/video recordings captured by workers from Guardhat devices. All their recorded media is automatically stored here.

You can view, play, download, and delete all media files. Deleting media files affects all SCC users, and deleted files cannot be recovered.

Only workers can capture audio, video, and images using their devices. You cannot access workers' cameras or microphones to record audio or video, or to take photos from the SCC.

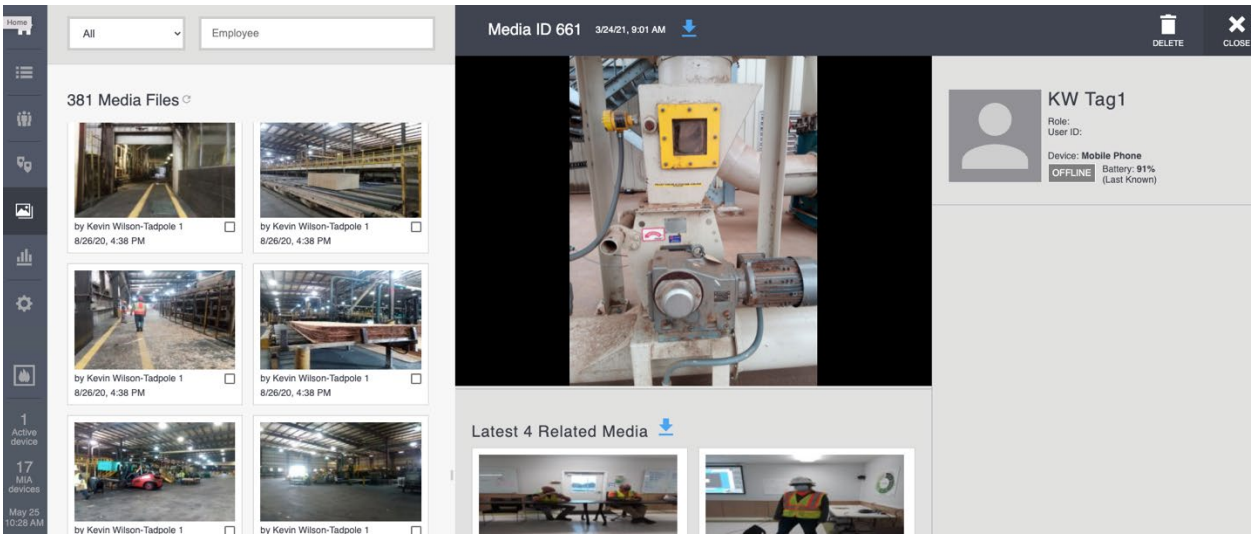

Figure 20: Example Media Screen

9.1 Navigating the Media Screen

To view, play, download, or delete a media file, simply click on the appropriate file in the left portion of the screen.

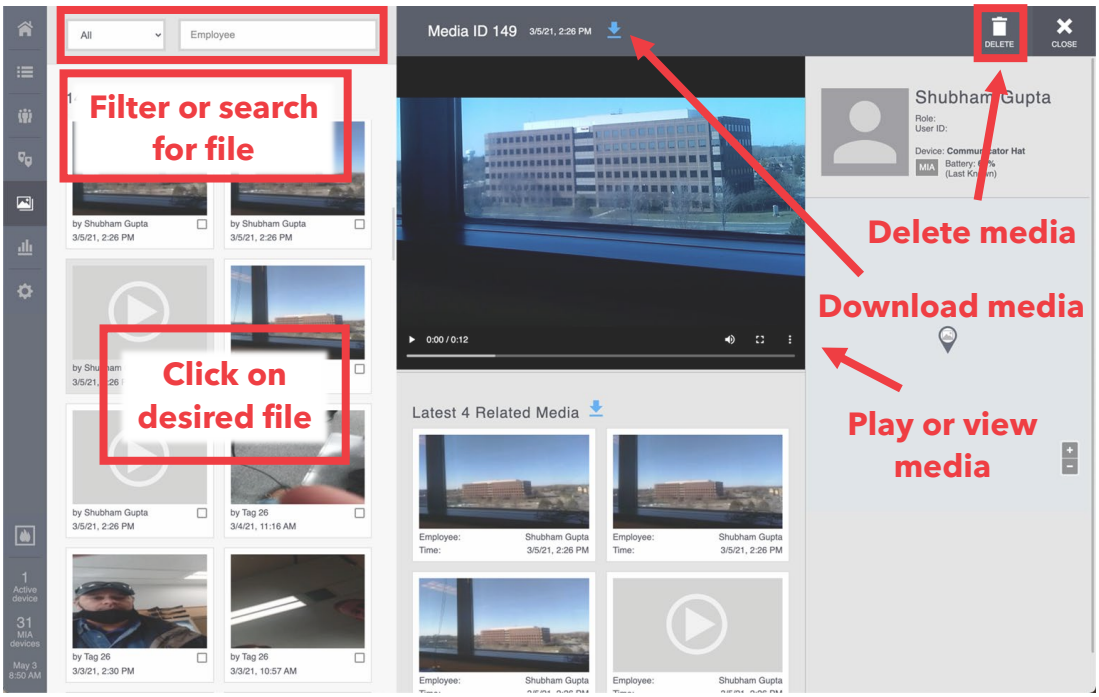

Figure 21: Navigating the Media Screen

Double click on an image or video to view it in full-screen mode.

Each media file includes location, device, and worker information, including:

- Role and user ID of the worker, and any personally identifiable information (PII) that you've added to the system
- Device type
- Date and time of media capture
- Location where media was captured, and the worker's location status at that time

NOTE: Video and audio calls are currently not recorded.

10 Reports Screen

The Reports screen helps you analyze workers' compliance and performance using multiple data points, including events, locations, proximity, and other data stored in the SCC.

You can export report data to any business intelligence (BI) software to combine data from multiple systems into holistic reports. Contact RKI Instruments, Inc. if you'd like to discuss integrating SCC Reports data into other systems.

You can also download all reports as a screenshot (.png) or an Excel spreadsheet.

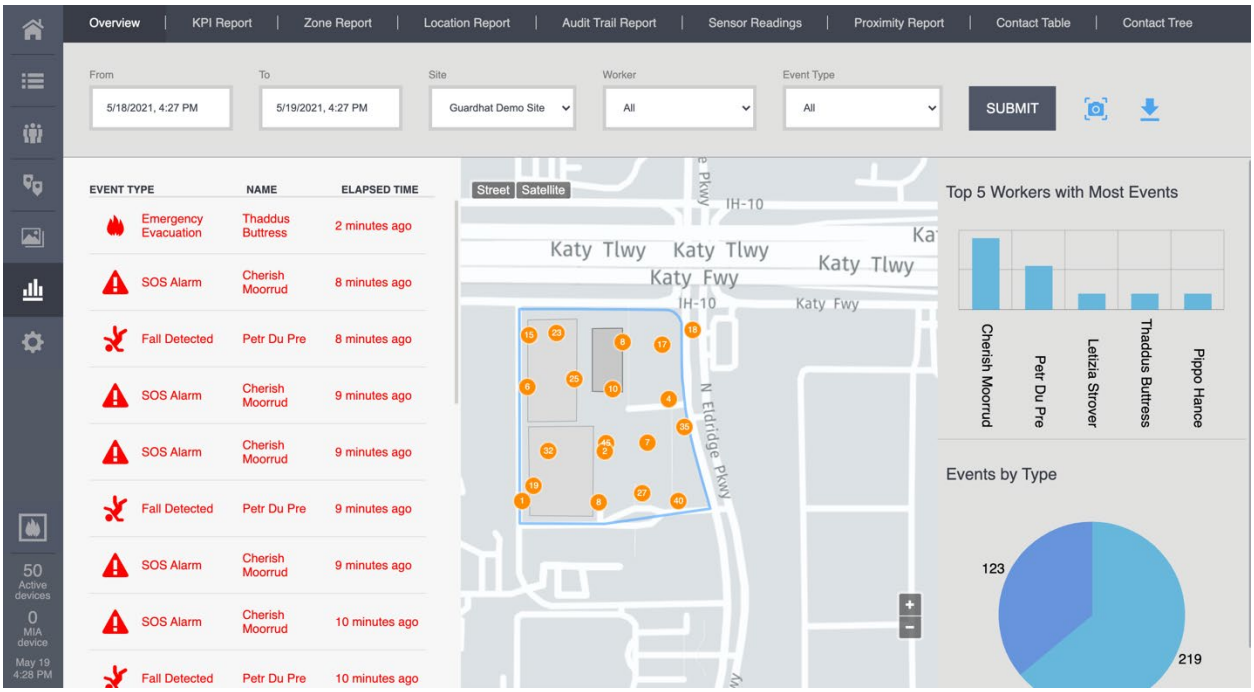

Figure 22: Example Reports Section

10.1 Types of Reports

Currently, the SCC offers the following report options:

- **Overview** – The Overview report provides a summary of the events to a site and/or worker(s) that occurred within an adjustable 30-day period. The report shows current and past events based on the date range you choose, and you can click on each event for details. The Overview report does not include data points from zones, as this information is captured in Zone reports (see below).
- **KPI Report** – The KPI report provides details of critical events, non-critical events, and critical event resolution times. This information is displayed as numbers and graphs, and the report can be generated based on the date(s) and work site. Contact RKI Instruments, Inc. if you'd like to adjust KPIs based on your company's specific goals.
- **Zone Report** – The Zone report displays Event Type details for zones. For example, you can run a zone report to see geofence compliance violations. You can select the zones covered as well as a custom date range.
- **Location Report** – The Location report displays walk paths and heat maps for specific workers at any site during the dates you select. You can choose locations based on GPS for outdoor movements and UWB or BLE for indoor movements. The walk path illustrates the path taken by the worker.

- **Audit Trail Report** – The Audit Trail report displays an audit of a defined walk path. Areas where the worker's path matches the defined work path are shown in green. Paths in red indicate the worker has deviated from the defined walk path.
- **Sensor Readings Report** – The Sensor Readings report displays the sensor readings of a worker's device. Use this report to determine specific physiological, biometric, or environmental trends, breaches of parameters, or near breaches. These can include exertion, heartrate, body temperature, ambient temperature, pressure, humidity, and noise rates.
- **Proximity Report** – Proximity reports indicate when equipment, heavy machinery, and/or vehicles are in close, potentially harmful proximity to a worker. This report requires both the equipment and the worker to use appropriate Guardhat devices and infrastructure in the area of detection.
- **Contact Table** – The Contact Table lists all users with social distancing event data for the date range of your choosing. The report presents a table that clearly break down these contact events and the length of time workers spent in proximity to each other.
- **Contact Tree** – The Contact Tree report displays a graphic that "links" a worker to first, second, and third degrees of contacts within the date period you selected. This tree enables you to easily visualize which workers had close contact – as defined in the system and adjustable – with a specific colleague.

10.2 Navigating the Reports Screen

The Reports screen offers many options to run and customize the criteria of your report.

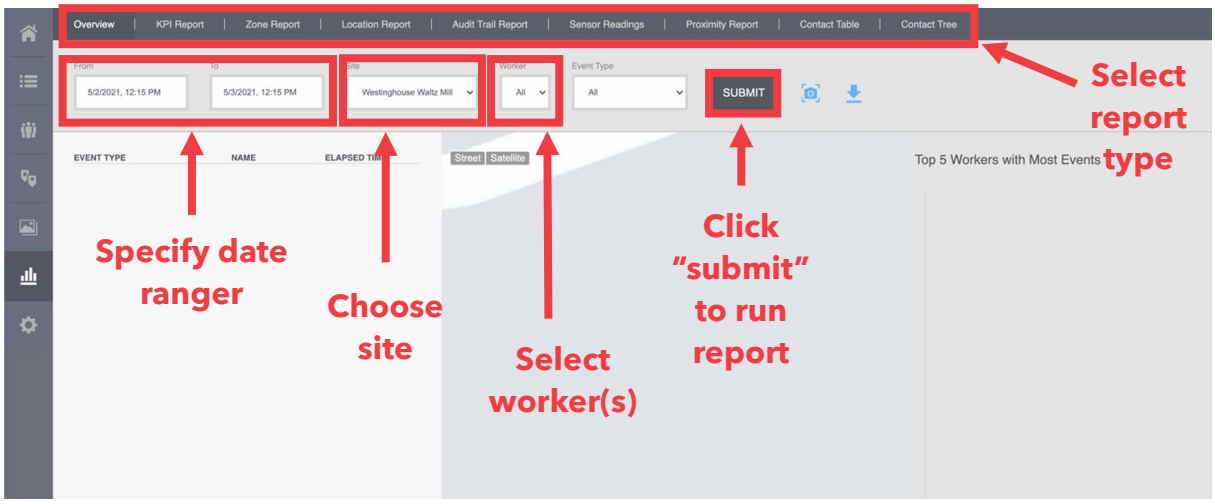

Figure 23: Navigating the Reports Screen

10.3 Running a Report

These instructions cover the basics of running a variety of reports. If you'd like to discuss which reports and parameters will help your organization most, contact RKI Instruments, Inc.

1 From the Reports screen, click on the report you would like to run from the "**Report Types" tab at the top of the screen.**

2 Complete the "From" and "To" date menus. You must click the "Set" button in the date menu for your date range to apply.

3 Select the location from the **Site drop-down menu.**

4 Choose the appropriate worker(s) and/or device(s) from the **"Worker" drop-down menu.**

5 Choose the following options for the various report types:

a. For Overview reports, specify Events in the “Event Type” drop-down menu.

b. For Zone reports, choose the desired zones in the “Zone” drop-down menu.

c. For Location reports, select Forklift or Worker in the “Location For” radio buttons and the corresponding device and data source from the “Forklift/Worker” and “Location Data Source” drop-down menus.

NOTE: If you need a variety of equipment tracked, contact RKI Instruments, Inc.

d. For Audit Trail reports, select the appropriate options in the “Audit Trail” drop-down menu and enter the “GPS(M),” “UWB(M),” and “BLE(M)” coordinates in their fields.

e. For Proximity reports, select Forklift or Worker in the “Proximity For” radio buttons and the corresponding information between the “Forklift/Worker” and “All” drop-down menus.

f. For the Contact Table reports, check the “CDC Guidelines” checkbox if you’d like the report to base contact on exposure of 15 minutes or longer within a 24-hour period.

g. For the Contact Tree reports, select the degrees of separation (1st degree, 2nd degree, or 3rd degree) from the “Degree of Separation” drop-down menu. Check the “CDC Guidelines” checkbox if you’d like the report to base contact on exposure of 15 minutes or longer within a 24-hour period.

6 Click on the “Submit” button.

Once you’ve run a report, you can download the report using these options:

Download a screenshot (.png) of the report

Download an Excel spreadsheet (.xlsx) of the report

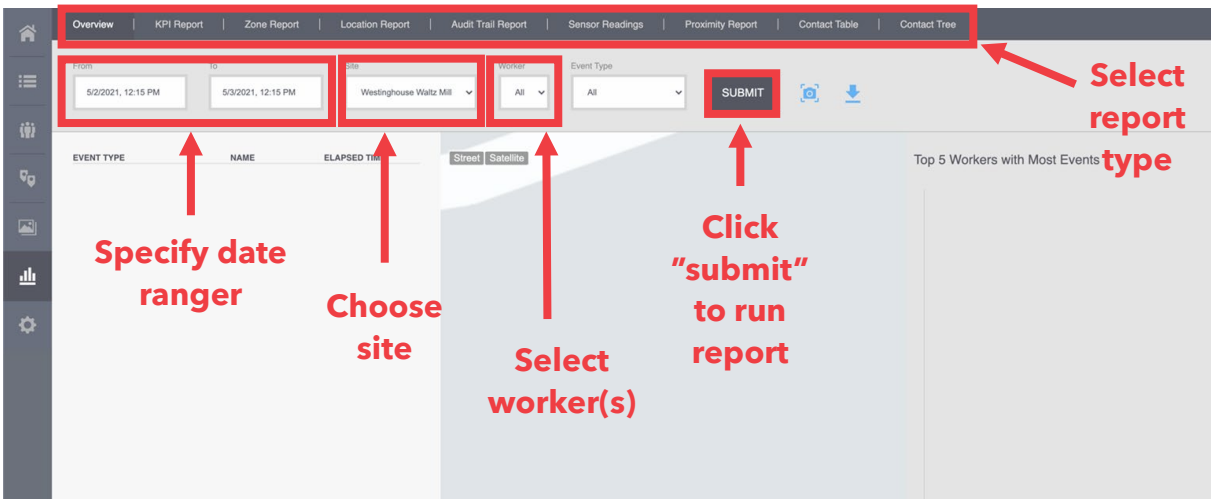

Figure 24: Running Reports

10.4 Report Examples

10.4.1 Overview Report

This report includes a summary of events within a 30-day period. You will see a table that includes the event type, name of the person associated with the event, and the duration of the event.

Events will be placed on a map for easy reference. You will also see a bar graph for "Top 5 Workers with Most Events" and a pie chart for "Events by Type."

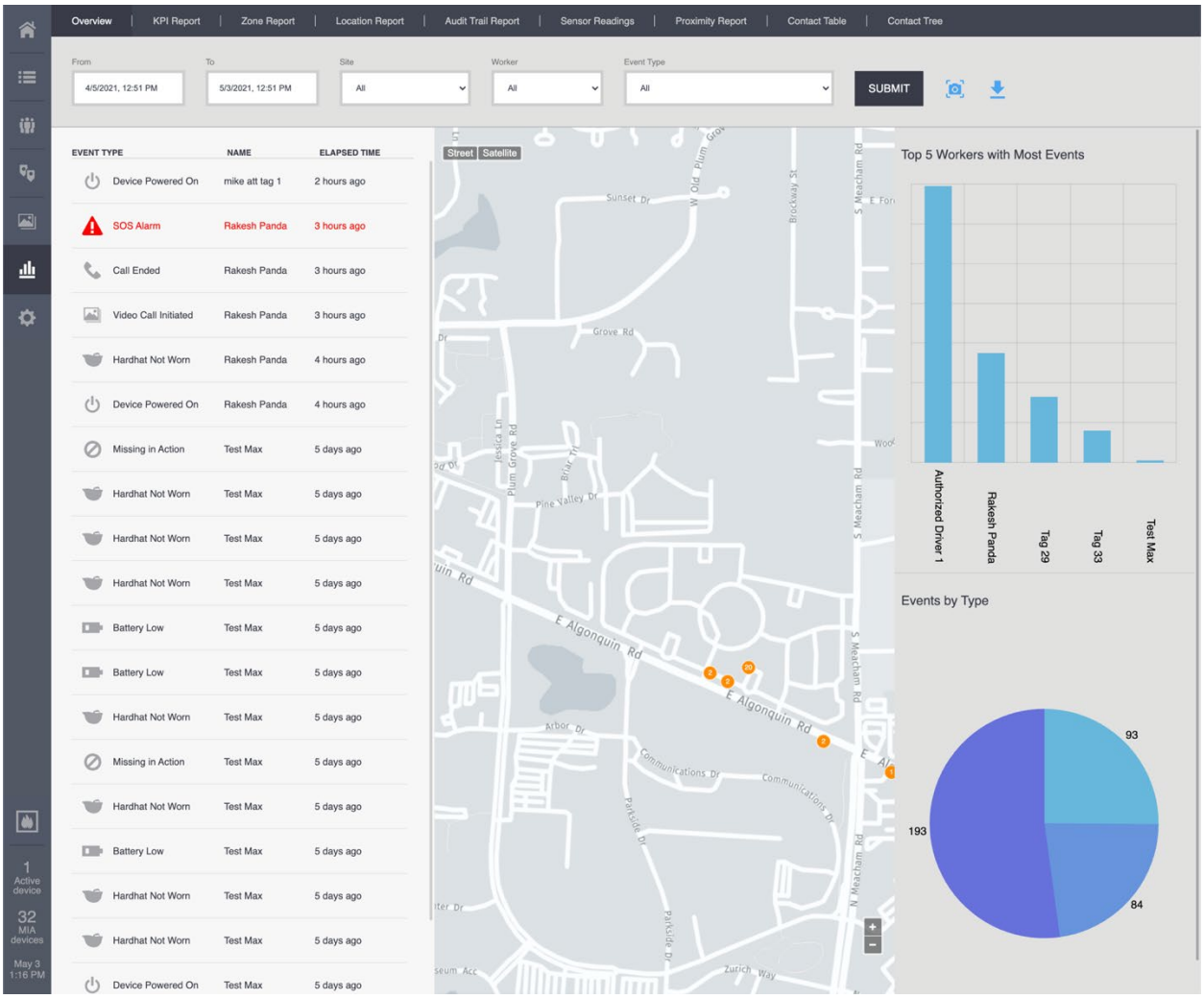

Figure 25: Example Overview Report

10.4.2 KPI Report

The KPI report focuses on critical events, non-critical events, and their resolution time. If you'd like to include other KPIs for your business, contact RKI Instruments, Inc.

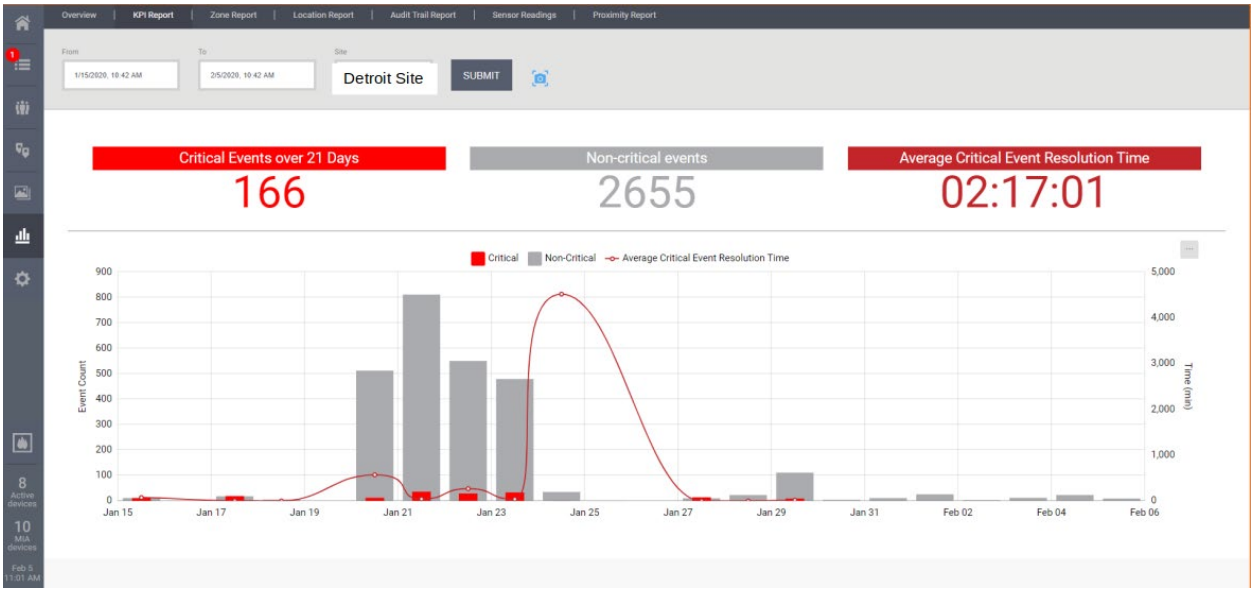

Figure 26: Example KPI Report

10.4.3 Zone Report

The Zone report is ideal for tracking geofence violations. You can see the type of violation, the worker involved, and the time of the occurrence.

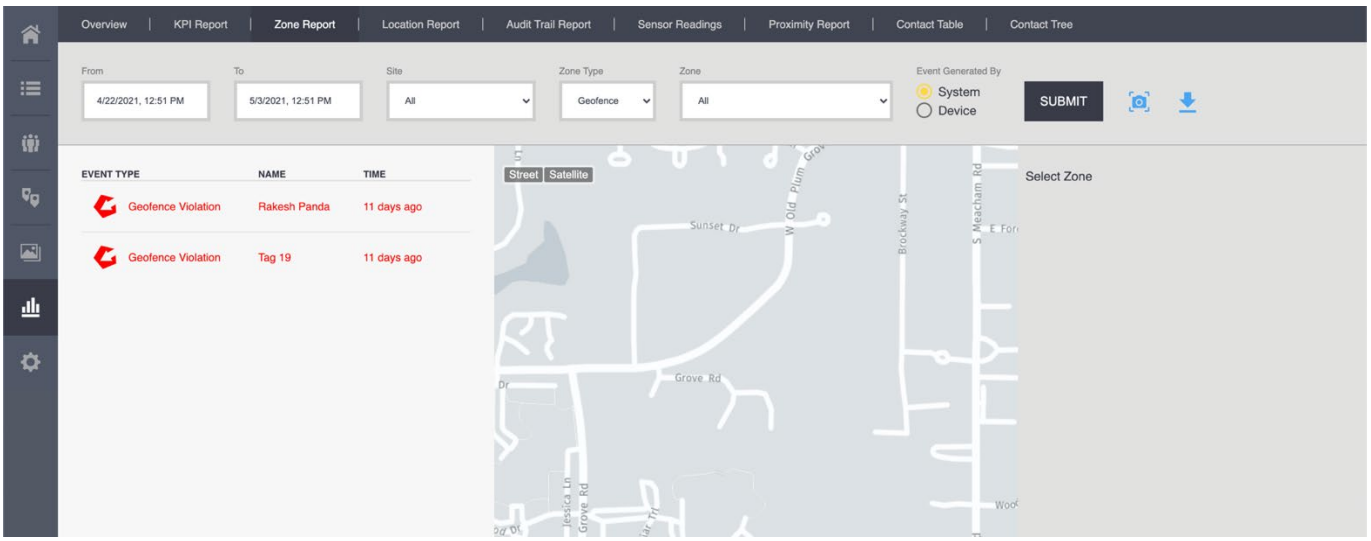

Figure 27: Example Zone Report

10.4.4 Location Report

The Location report displays walk paths and heat maps for specific workers at any site during the dates you select. This report helps you understand worker movements over time, as well as identify congested or rarely visited areas.

You can choose locations based on GPS for outdoor movements and either UWB or BLE for indoor movements. The walk path illustrates the path taken by the worker. The triangle denotes where the worker began or started on their walk path, and the square denotes where they stopped.

The heatmap indicates the density of human or equipment traffic during the date range you selected. Red represents the most heavily trafficked or visited, and blue-ish green signifies the least trafficked.

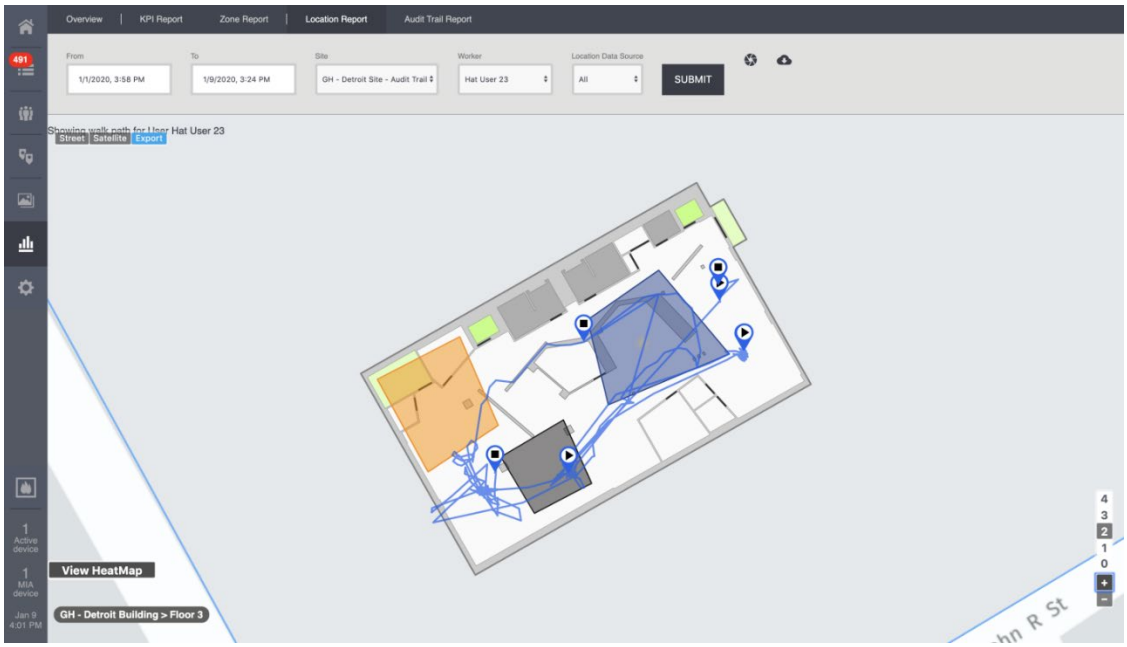

Figure 28: Example Location Report – Walk Path

Figure 29: Example Location Report – Heatmap

10.4.5 Audit Trail Report

The Audit Trail report displays an audit of a defined walk path. Areas where the worker's path matches the defined work path are shown in green. Paths in red indicate that the worker has deviated from the defined walk path.

This report allows you to measure compliance for walking paths and adjust work procedures.

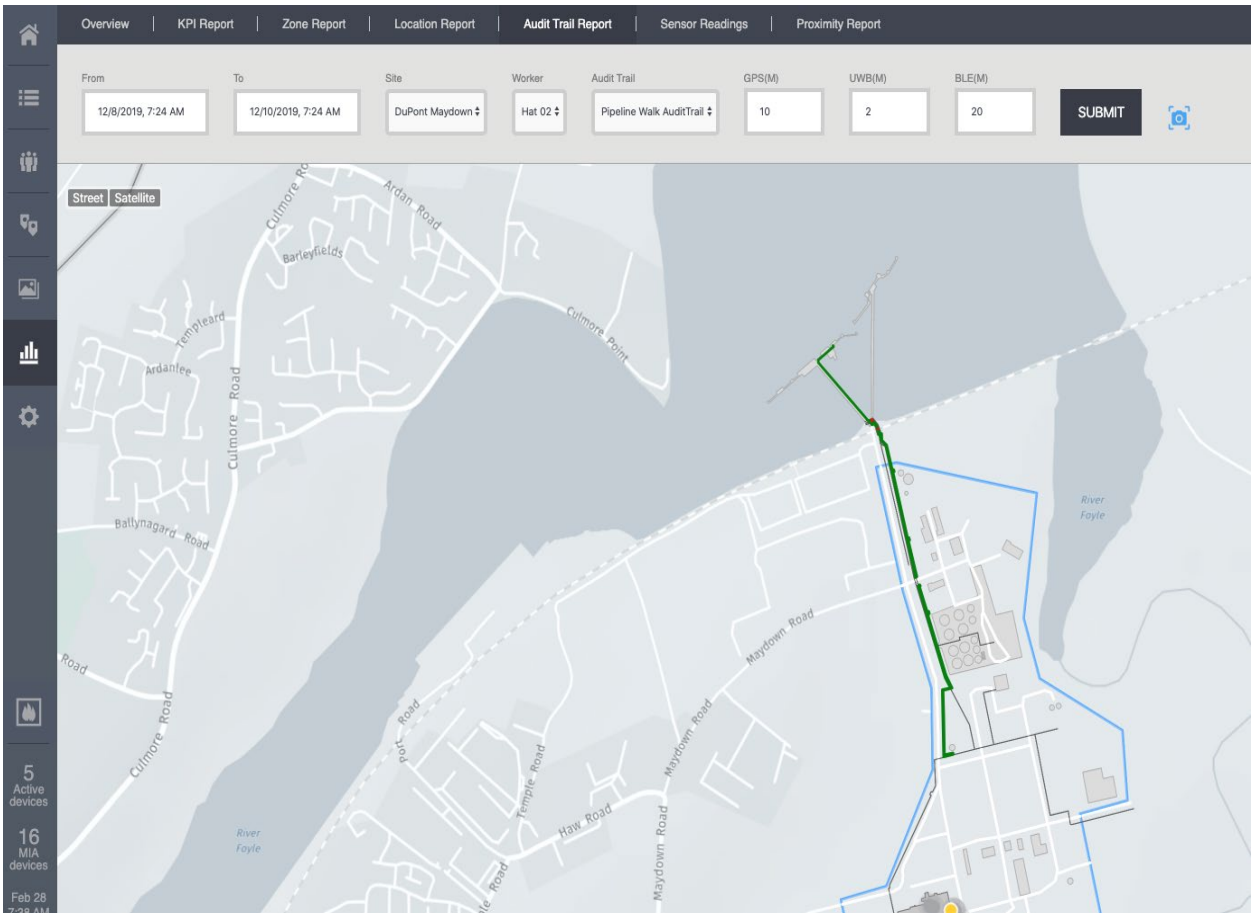

Figure 30: Example Audit Trail Report

10.4.6 Sensor Readings Report

The **Sensor Readings** report displays the sensor readings of any worker in a time plot. These data points could be used to find specific temperature, humidity peaks, worker exertion across a period of time, heartrate, gas concentrations, and a wide variety of other sensor readings possible from integrated third-party devices. Maps that indicate high noise areas are also available.

To see specific sensor readings, first select the date range, the site, the worker, and the sensor type (currently, four sensor types are available – Biometric, Ambient conditions, Gas and Dosimeter). Once the sensor type has been selected, click **SUBMIT** to see the data. The chart also provides time zoom capability down to a sub-second resolution.

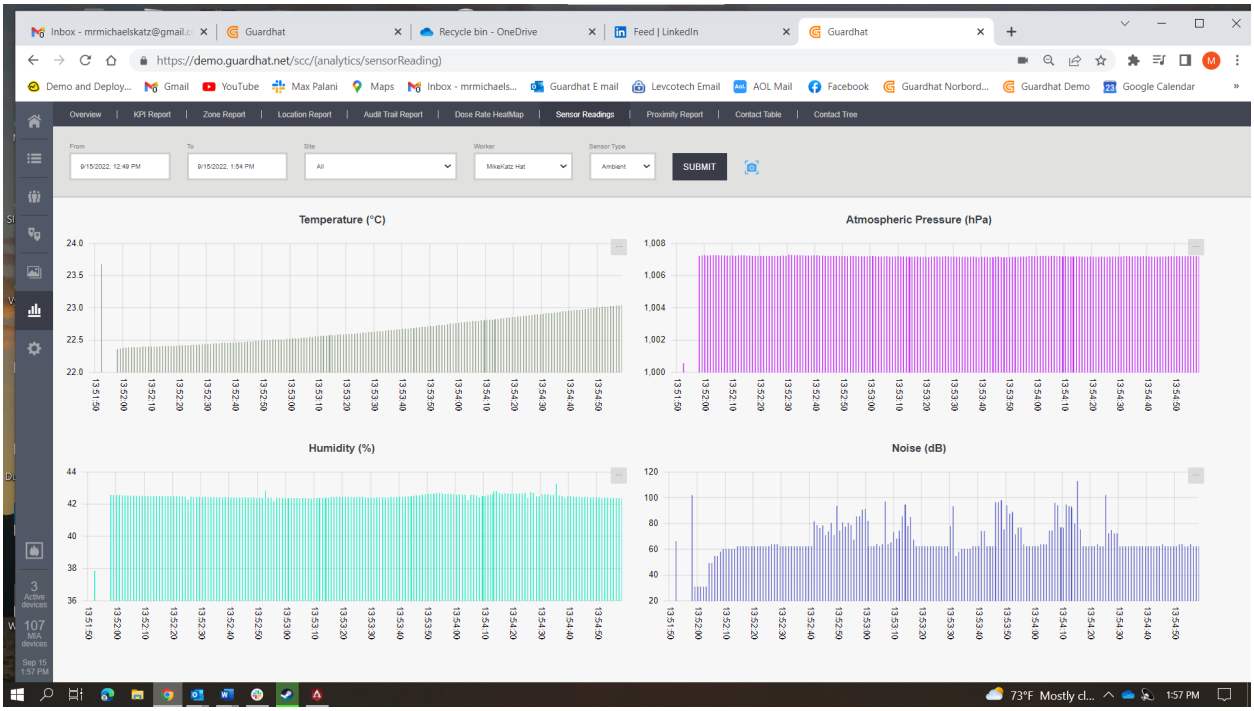

Figure 31: Example Sensor Readings Report

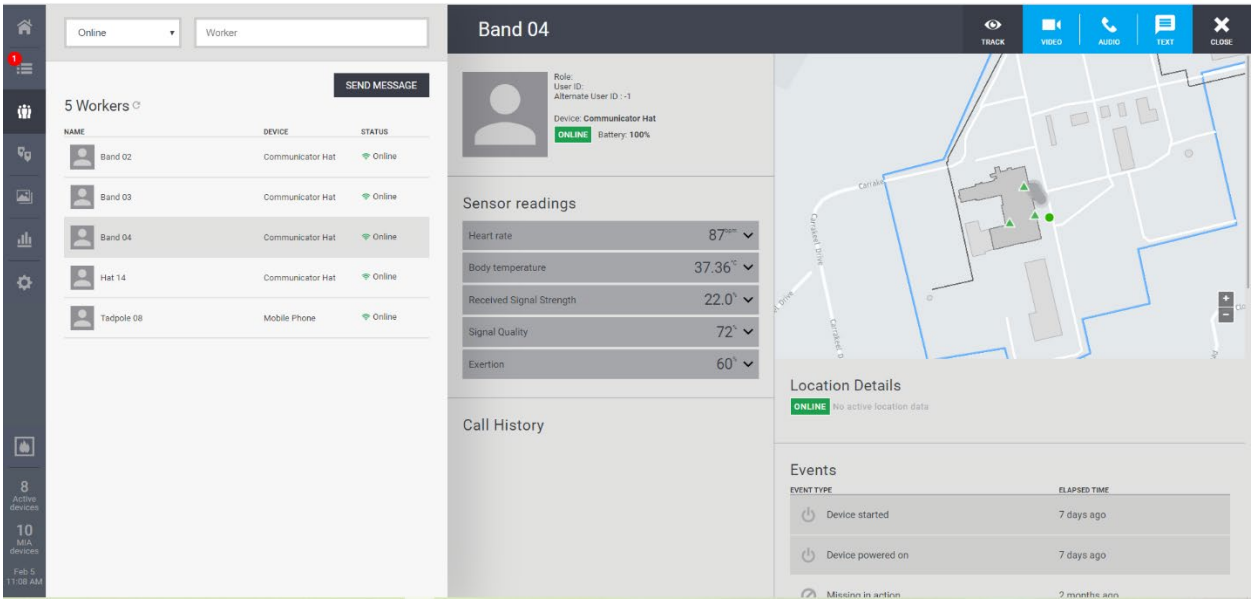

Figure 32: Example Worker's Physiological Sensor Data

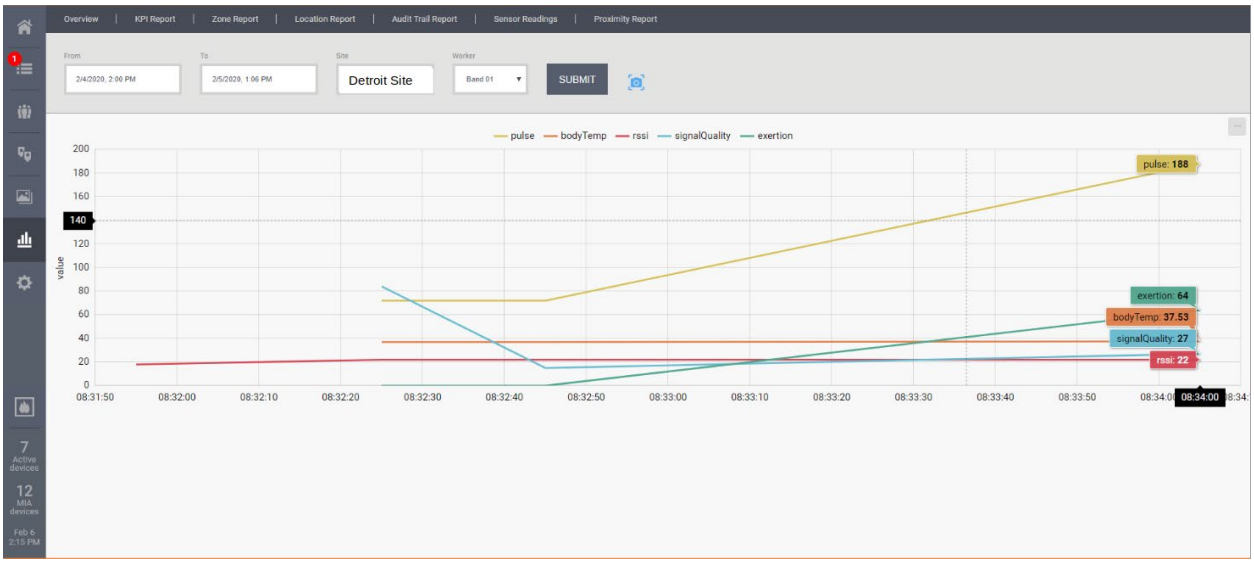

Figure 33: Example Worker's Physiological Sensor Graph Visualization

10.4.7 Proximity Report

Proximity reports indicate when a forklift or other equipment was too close to a worker. This report requires both the equipment and the worker to use appropriate Guardhat devices and a location infrastructure in the area of detection.

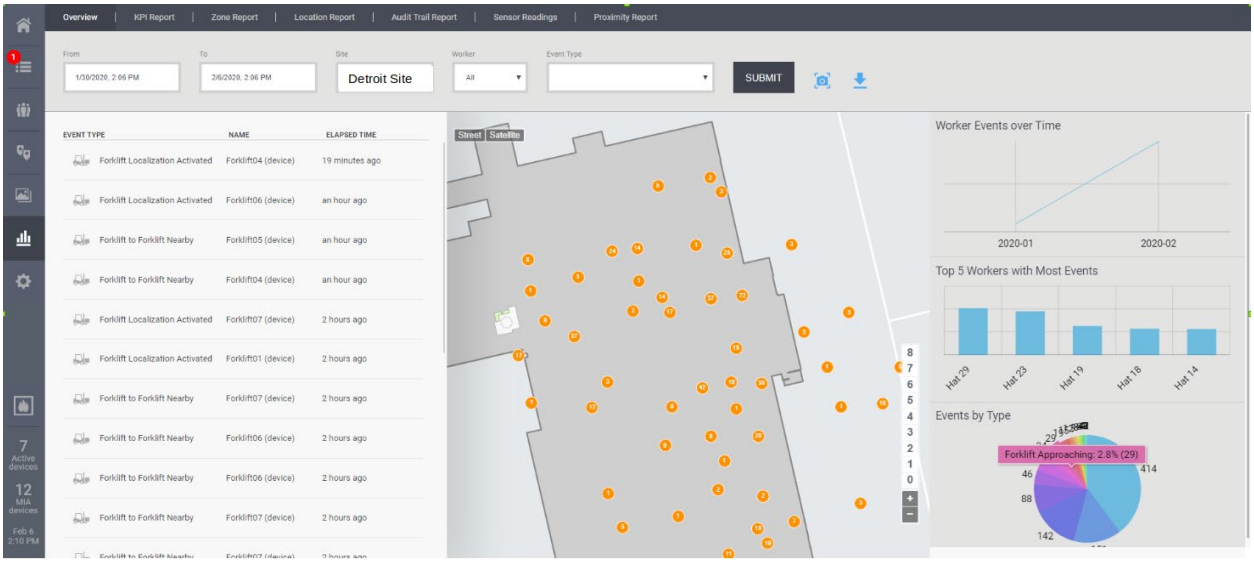

Figure 34: Example Proximity Report

10.4.8 Contact Table Report

The Contact Table report lists all users with social distancing event data for the date range of your choosing. The report offers graphs and tables that clearly break down these contact events and the length of time workers spent in proximity to each other.

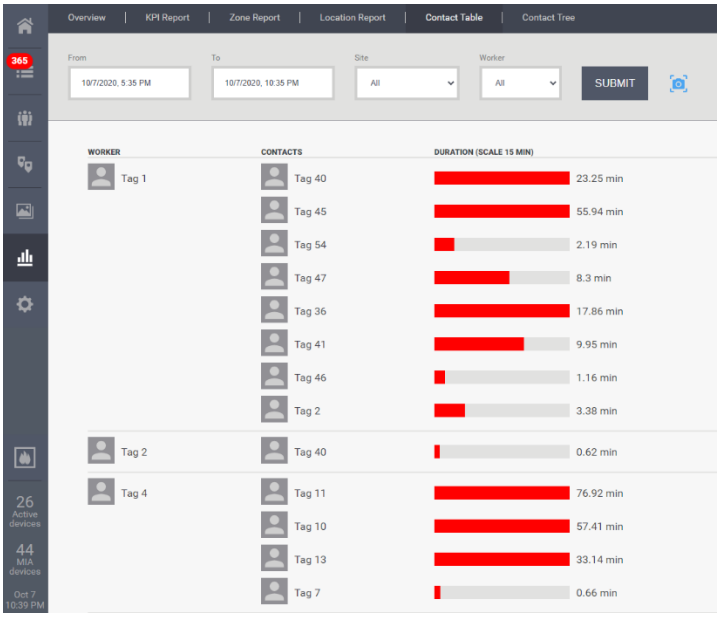

Figure 35: Example Contact Table

10.4.9 Contact Tree Report

The Contact Tree report displays a graphic that "links" a worker to their first, second, and third degrees of contacts within the date period you selected. This tree enables you to easily visualize which workers had close contact with an infected colleague. If you choose not to identify devices by workers' names in the SCC, share this report with the department that can match devices to workers.

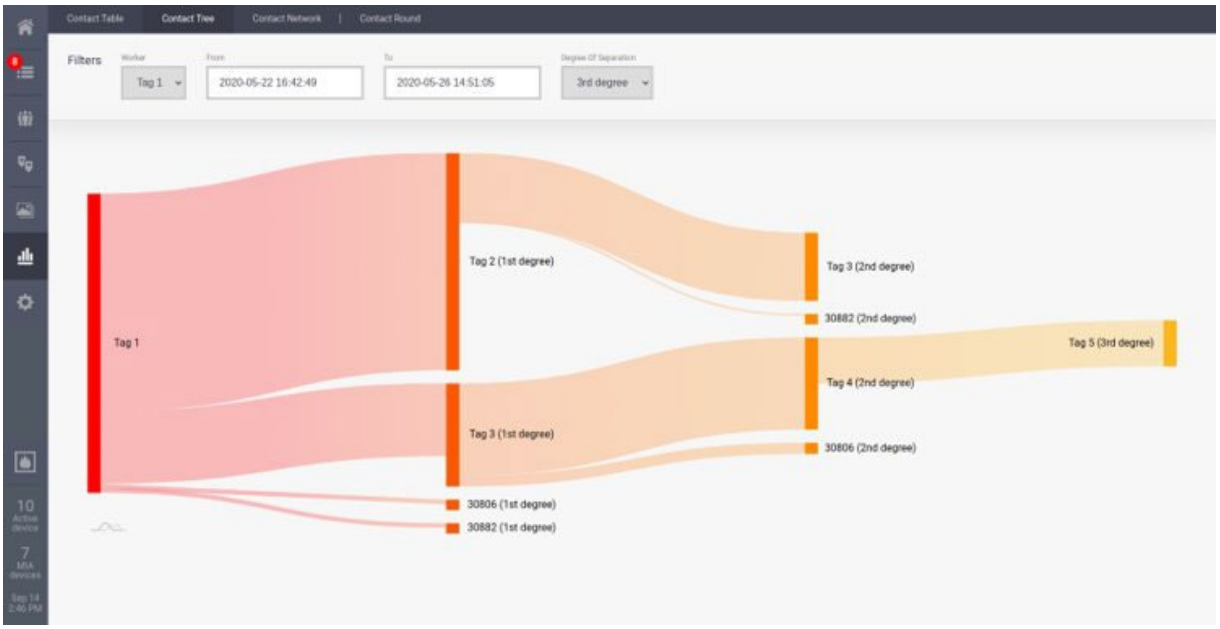

Figure 36: Example Contact Tree Report

11 Administration Screen

The Administration screen allows you to change personal settings, including your password, and settings that affect workers, jobs sites, devices, and SCC data.

Small changes in the Administration screen can impact many reports, processes, and devices. We strongly recommend both proper training and careful consideration of changes in the Administration screen before implementing them.

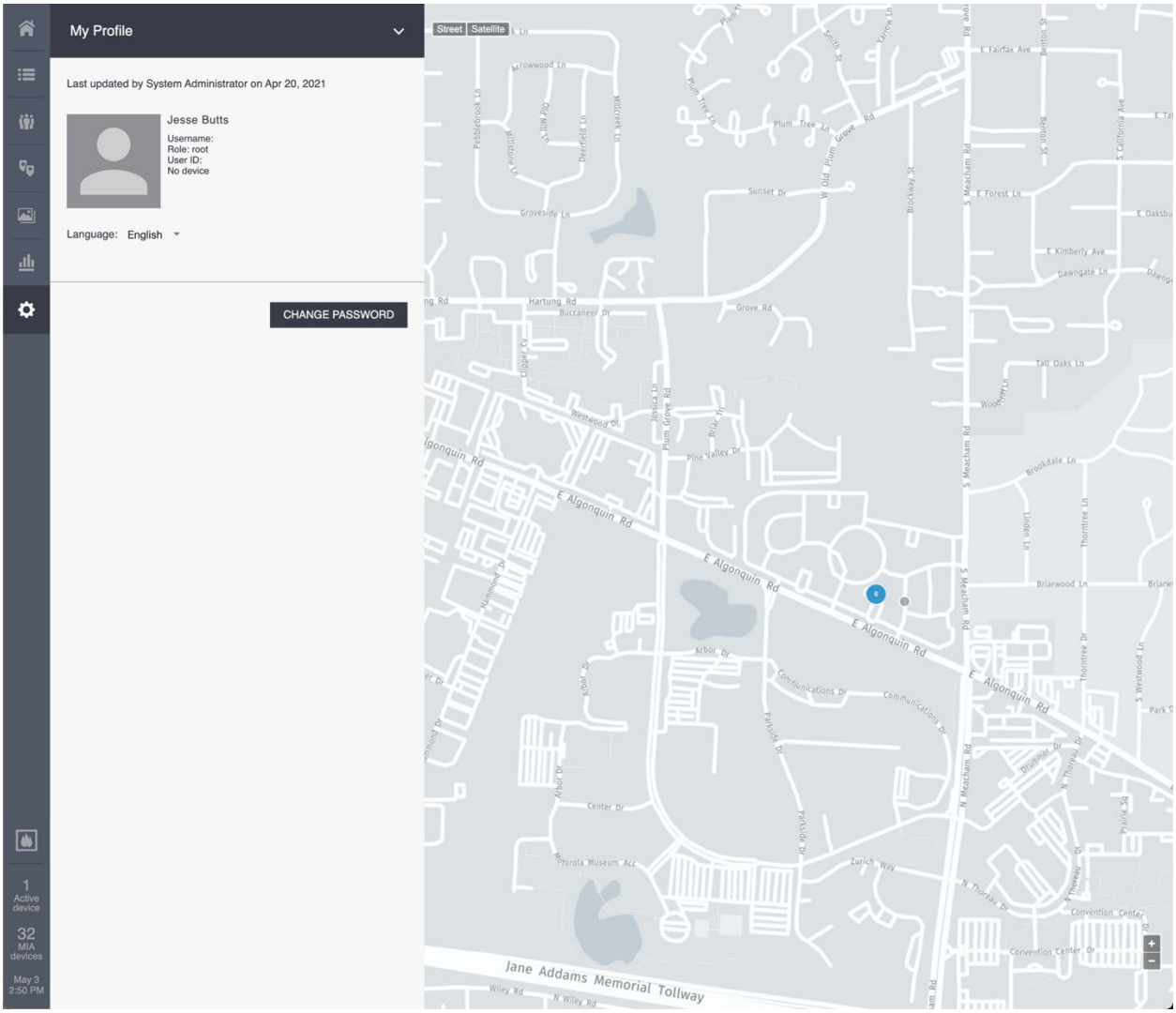

Figure 37: Example Administration Screen

11.1 Administrative Options

To access the Administrative screen, Click on the **cog icon**. From the Administration screen, you can directly modify numerous settings within Your Profile and the User Manager section. With assistance from RKI Instruments, Inc., you can configure further settings within Device Manager, Vehicle Manager, Beacon Manager, System Configuration, Map Manager, and Webhook Manager.

11.1.1 My Profile

This section displays information including your username, role, and user ID. You can also change your password and the language settings for the SCC.

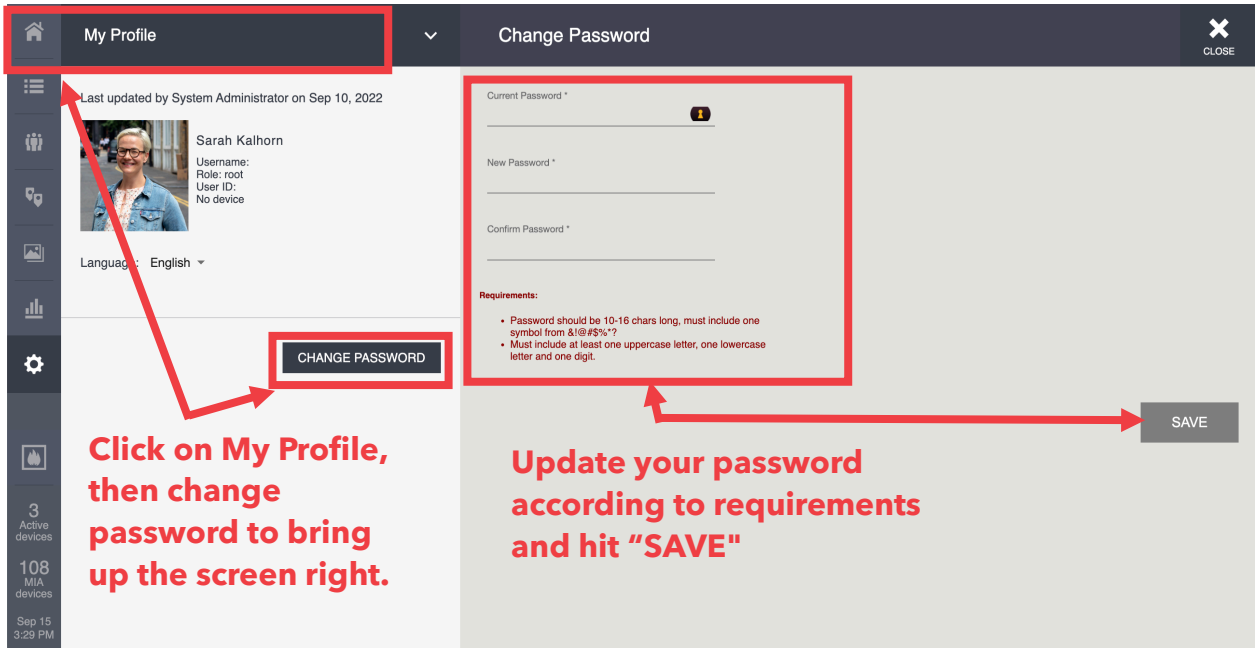

Figure 38: Changing your password

The SCC is currently available in English, Spanish, French, Brazilian Portuguese and Russian. Changing the language settings only impacts the language displayed for that user or profile. It will not change the language other SCC admins or users on the same instance, nor will it change the language displayed or spoken on compatible devices. Devices language settings are managed differently through device configurations.

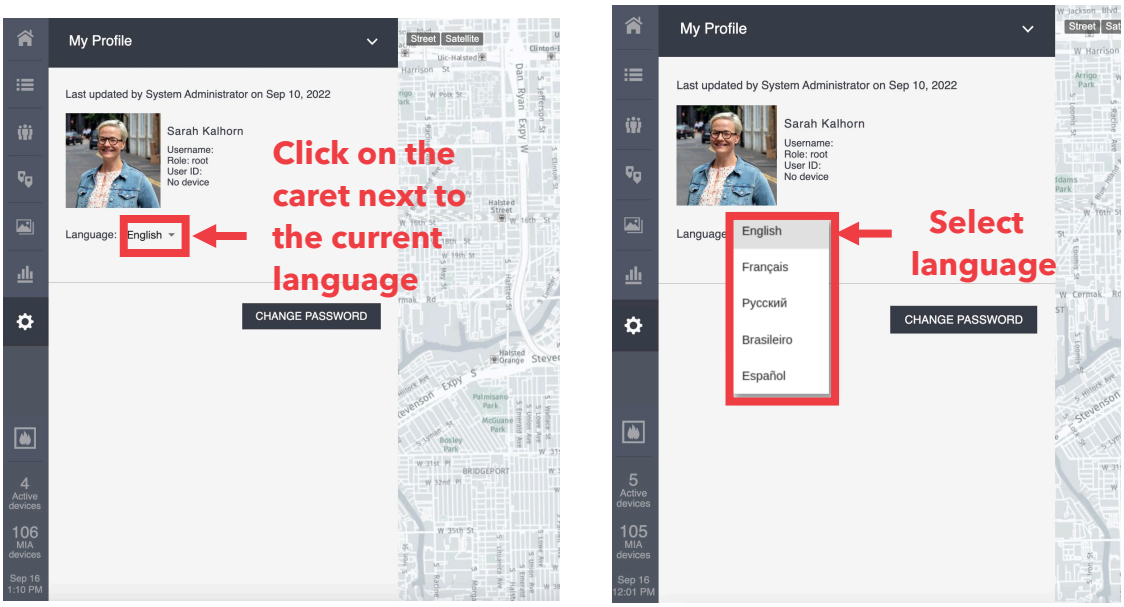

Figure 39: Changing the display language

11.1.2 User Manager

This section enables adding new users to the SCC, assigning devices to users, and viewing a comprehensive list of currently enabled and disabled users. When you order devices from Guardhat, they will arrive provisioned to your SCC instance. If you add users via the Guardhat App, you need to add them to the SCC so the user can log-into the application on their phone. All users require a user license, so in creating users' additional fees may apply.

To add a user, follow these steps:

1 Hover over the "My Profile" down-facing caret and select the "User Manager" menu link.

2 Click on the "Add User" button.

3 Complete all the required fields and then click on the **"Next" button.**

NOTE: These fields impact other capabilities. E.g., the user supervisor impacts Event incident management direction, and user department helps identify devices that need to be calibrated for compliance. To fully utilize these features, ensure you have complete and accurate user information entered.

4 Select the **"Hat User" button** under "User Type."

5 Enter the following credentials:
   a. A username in the "SIP ID" text field.
   b. The user's password in the "SIP password" text field.
   c. The same user password in the "Confirm password" text field.

6 Once all login credentials have been entered, click on the **"Next" button.**
   a. Be sure to securely store the username and password before continuing.

7 Click on the "Add User" button and then the "Confirm" button.

8 To assign the user to their device:
   a. Select the appropriate device from the **"Device" drop-down menu.**

b. Click on the "Permanent association" check box.
c. Click on the "Assign Device" button.
d. Click on the **"X (Close)" icon in the upper right** of the pop-up window.

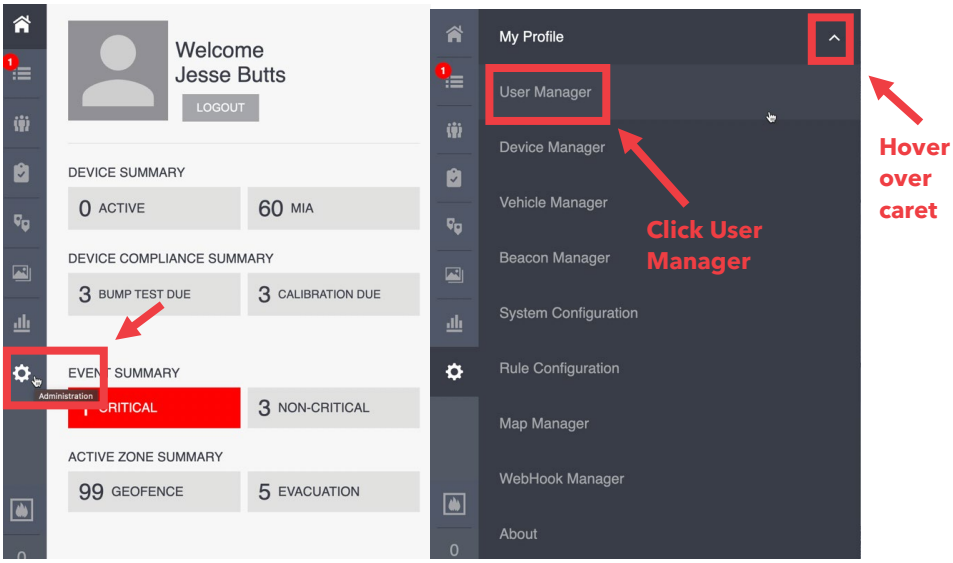

Figure 40: Adding New User: Part 1

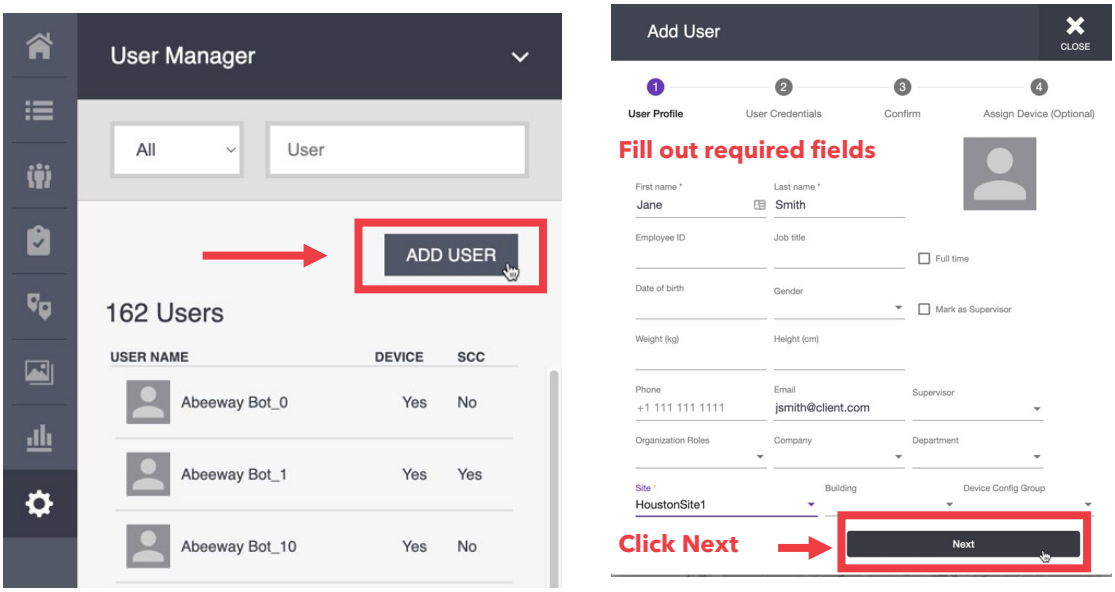

Figure 41: Adding User: Part 2

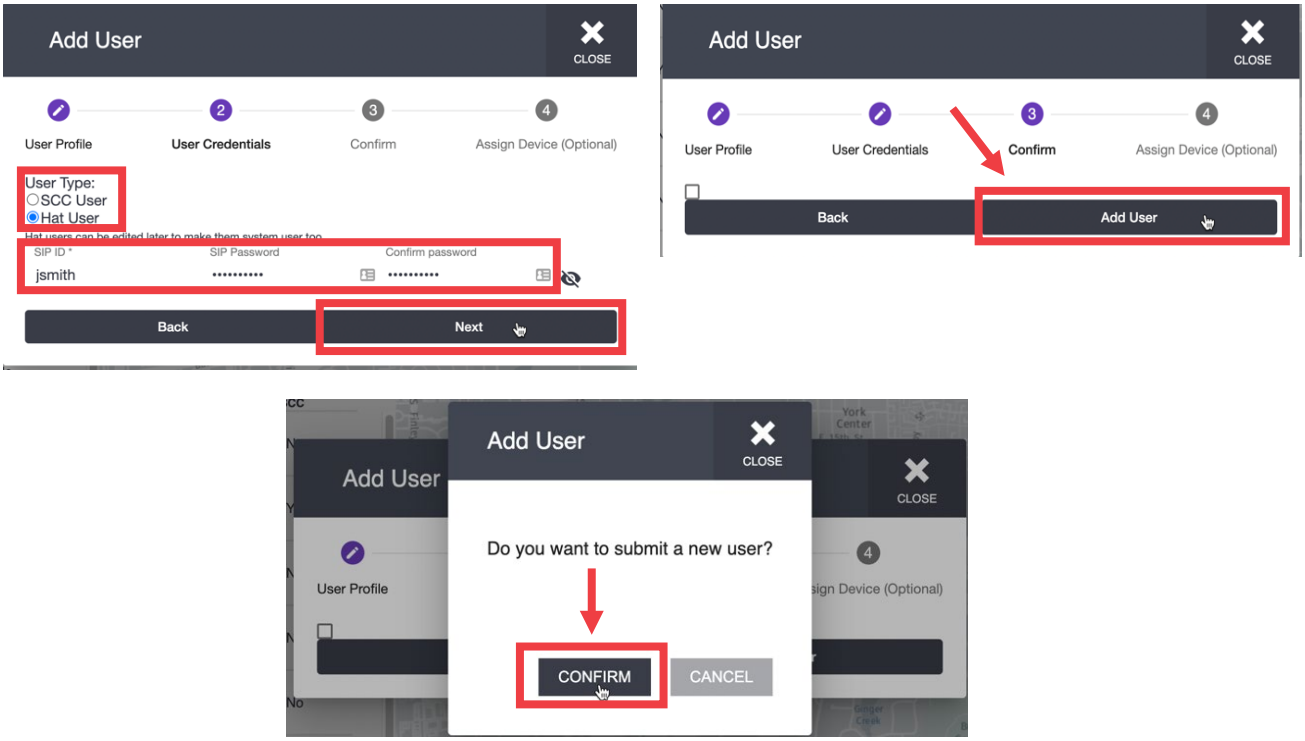

Figure 42: Adding New User: Part 3

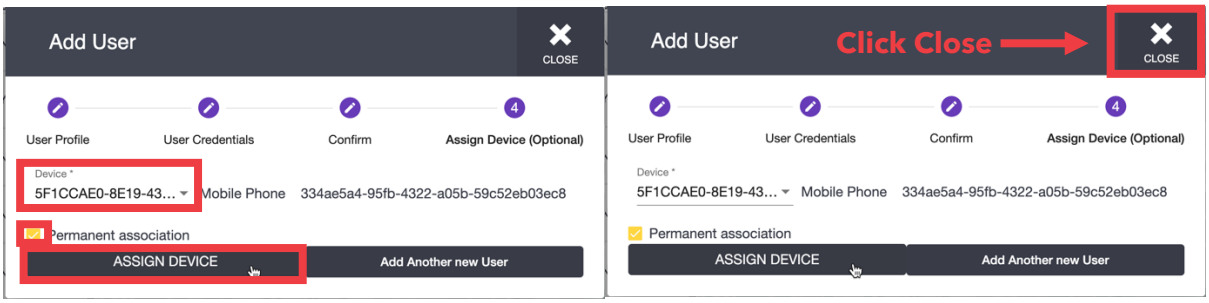

Figure 43: Adding New User: Part 4

You can then provide the user with your host URL, username, and password. **Instruct the new user to NEVER share their login credentials with anyone.** If the user misplaces of forgets their login information, the SCC administrator to assign a new password.

11.1.3 Enabling PTT, Phone, Media, Alerts, and More for Users

Many user features are controlled by user groups. Instead of having to select or disable functionality for each individual user, user groups allow you to determine which functions users will need by their function and/or job role.

The functions controlled by user groups comprise:

- PTT
- Phone
- Media functionality
- Nearby workers critical events
- SOS alarms
- Fall detection
- Gas detection monitoring

RKI Instruments, Inc. or your organization's SCC administrator can help determine which user group will provide a user with the access they need. **The Guardhat support team can create or modify user groups.** If you need a new user group – or you would like to alter an existing user group – please contact RKI Instruments, Inc.

To assign a user to the appropriate user group, follow these steps:

1 Log in to the SCC.

2 Click on the "Administration" (cog) icon.

3 Hover over the "My Profile" down-facing caret and select the "User Manager" menu link.

4 To find the intended user, **type the name in the "User" text field.** You may press Enter or wait for the focused list.

5 Click on the **intended user's name** to access settings.

6 Click on the "Edit" icon in the upper right.

7 To assign or change the user group, select the appropriate user group from the **"Device Config Group" drop-down menu**.

8 Click on the "Save" icon in the upper right.

9 Click on the "Confirm" button.

10 You will see confirmation of the change in the lower right portion of the SCC screen.

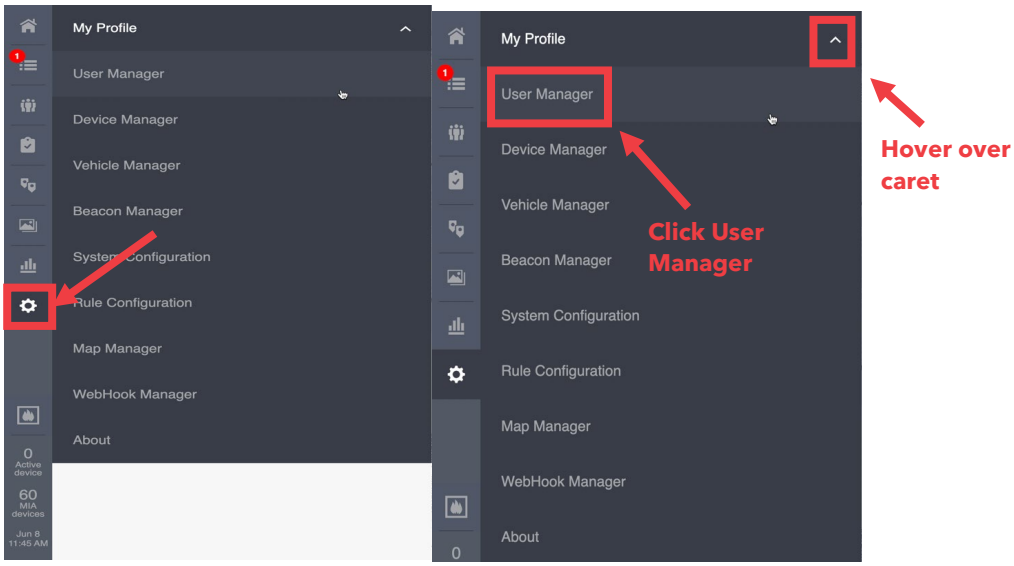

Figure 44: Enabling PTT and Media Access: Part 1

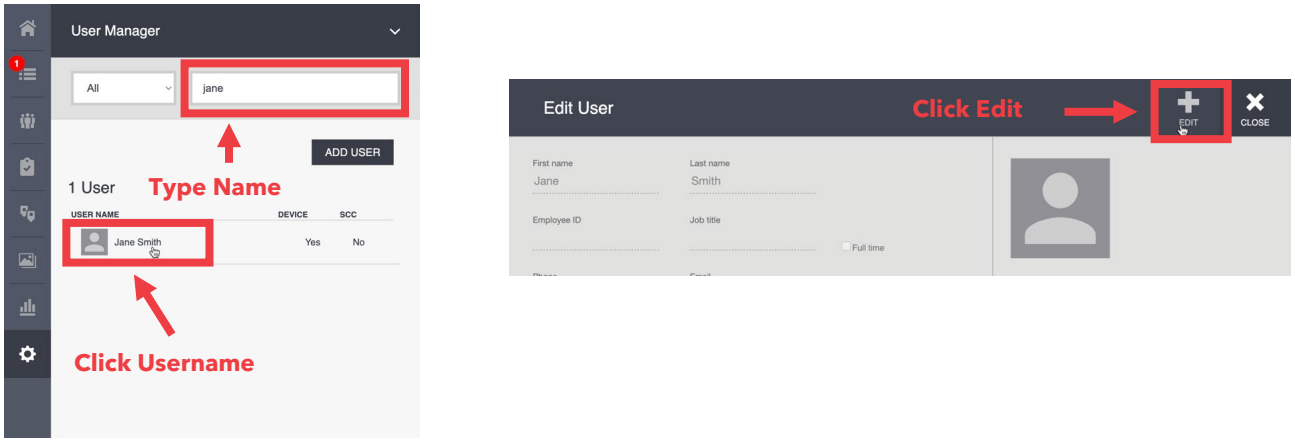

Figure 45: Enabling PTT and Media Access: Part 2

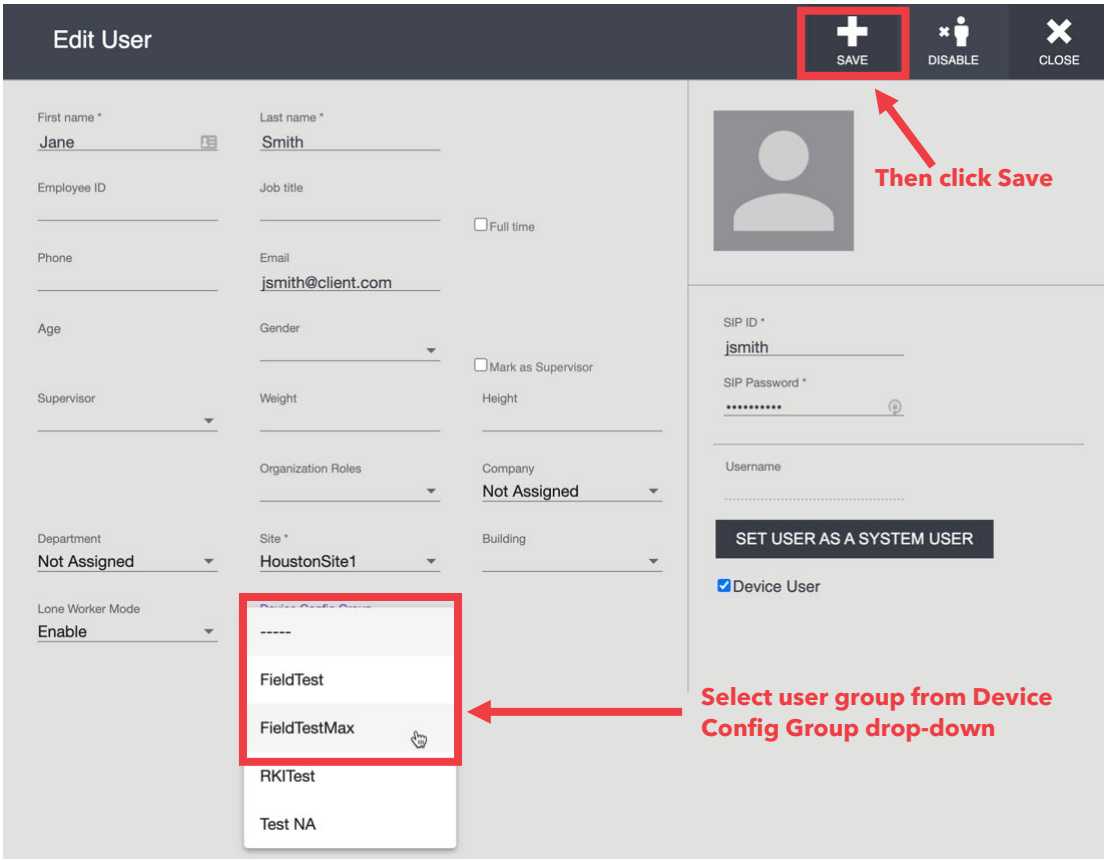

Figure 46: Enabling PTT and Media Access: Part 3

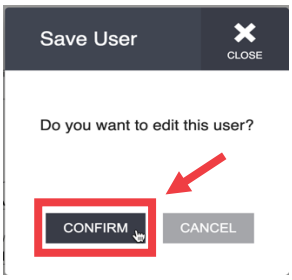

Figure 47: Enabling PTT and Media Access: Part 4

11.1.4 Additional Administration Menu Items

The remaining Administration menu items should only be used with support from RKI Instruments, Inc.

- **Device Manager** – This section allows the addition of new devices. A complete list of tags, sensor stations, mobile apps, smart hard hats, glasses, biometric bands, and more is readily available.
- **Vehicle Manager** – This section is designed for adding new forklifts, trucks, cranes, trains, and other vehicles or equipment to the system. It includes the ability for input processing and motion parameters for each vehicle.
- **Beacon Manager** – This section allows the addition of new beacons into the system. It provides a list of gateways, anchors, fixed beacons, and moving beacons.
- **System Configuration** – This section provides information for various SCC and Guardhat operational settings. If your organization uses Lone Worker and/or Gas Detection & Analytics solutions, solution-specific features can be turned off or on System Configuration section. Please refer to section 12 on Solutions.
- **Rule Configuration** – This section allows for customizable rules, such as what happens when a certain device is powered on.
- **Map Manager** – This section displays your current map and allows for addition and modification of maps.
- **Webhook Manager** – This section allows for real-time, event-driven integration with other web interfaces, enabling the SCC to work with your existing tech stack for the greatest ROI.

12 Solutions

The Guardhat platform can work with many devices and software applications to provide customized connectivity and capabilities. Guardhat, and its ecosystem partners, have built solutions to provide specific capabilities. If you are looking for a custom solution, please reach out to Guardhat.

12.1 Gas Detection & Analytics

The Guardhat Gas Detection and Analytics solution allows users to immediately respond to exposure threats to individual workers in real-time before incidents occur, respond quickly and effectively if workers are injured, as well as aggregate and analyze exposure trends for actionable intelligence to improve worker safety and operations going forward. The solution integrates the RKI GX-3R Pro portable, four- and five-gas monitor with the Guardhat platform via a Bluetooth connection to the Guardhat iOS or Android app. The solution enables remote visibility to gas levels and alarms, fleet compliance, worker collaboration via PTT, A/V calling and media capture, as well as SOS, fall detection, worker-down, geofence violation, and lone work alerts.

12.1.1 Device Connection

Initial connection of a gas detection device to the SCC is done by connecting your mobile phone to the device using the Guardhat app. Turn on the gas detector and log-in to the mobile app. If the device has a QR code, then you simply go the Guardhat application on your phone, select the **Connect Devices** screen, point the camera at the QR and the app will find the device if it is an integrated, recognized device. You can also select the device from **Available Devices** and the mobile phone will connect. Once connected, the app will automatically pair with remembered devices.

12.1.2 Viewing Sensor Data

Once the device is paired with the Guardhat app, the SCC will automatically begin to display and record data. To view the data on the mobile phone, select **Sensor Data** from the menu in the upper left corner and the following screen appears showing all current values from the gas detector.

Figure 48: Viewing gas readings on the Guardhat mobile app

Gas readings are viewable on the SCC via multiple screens where sensor data is shown, including the **Home, Compliance, Events, Workers, Reporting screens**. Refer to those sections on how to view.

12.1.3 What Happens When a Gas Alarm Occurs?

When a sensor reading exceeds allowable limits, the worker is immediately informed through gas detector and the Guardhat app **Events** screen with basic information about which alarm has occurred and when it occurred.

Concurrently with the alarm generated for the worker, an alarm event is also generated on the SCC interface. The alarm creates a red bubble on the Events menu sidebar, shows up in the Home screen by increasing the number of critical events listed, and within the Events screen as a critical event, high-lighted in red, with basic information about what alarm has occurred and when it occurred as well as the worker impacted. Reach out to RKI Instruments, Inc. if you'd like the system configured to share alarm info via text or email with stakeholders outside the Guardhat ecosystem as well.

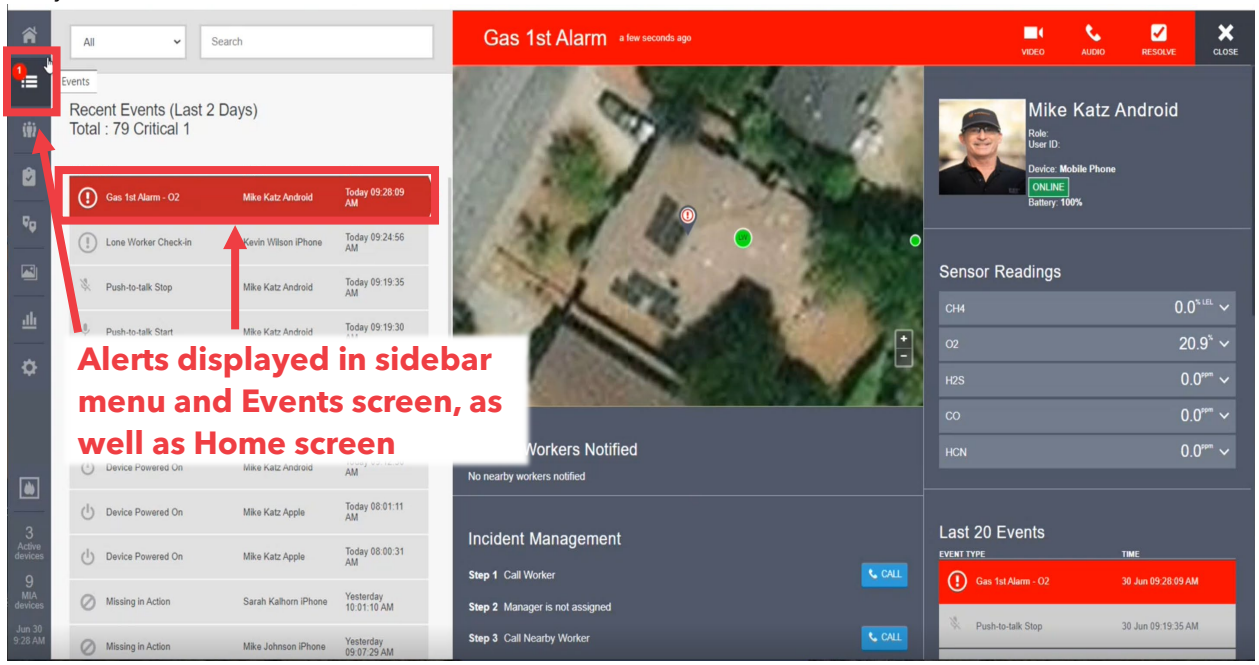

Figure 49: Gas event alerts on SCC

Once the SCC operator selects this event the following information is available to them:

- Worker location, role, and device details
- Live gas readings and information about the last 20 events for that worker to help the administrator understand the current risk
- The ability to contact the worker from the top right ribbon
- The ability to contact nearby workers, who will also have received an alert on their device.
- An Incident Management plan is generated which gives the SCC admin the ability to:
  - Immediately contact the worker in trouble by clicking on the **CALL** button
  - Contact the workers supervisor
  - Call other nearby workers by clicking on their **CALL** buttons
  - Finally, in addition to the above options, the SCC can immediately call 911 or the nearest emergency response team

12.1.4 Resolving the Gas Alarm

When the worker is no longer in danger, the SCC operator is responsible for resolving the event.

The SCC operator should resolve the event by clicking the **RESOLVE** button in the upper right-hand side of the screen.

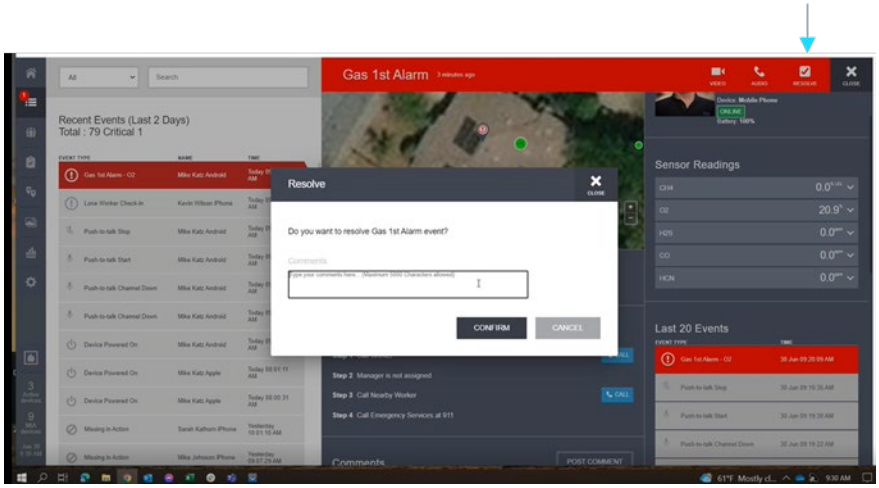

Figure 50: Resolving a gas alert on SCC

Once the Resolve button is clicked, a prompt appears and provides a text box to enter details of the event and resolution. This comment is stored for use in the Analytics section of the SCC and can be set up to be shared with other reporting systems, including ERP or EHS incident management software. Once resolved, the event shows in strikethrough format before disappearing after a few seconds.

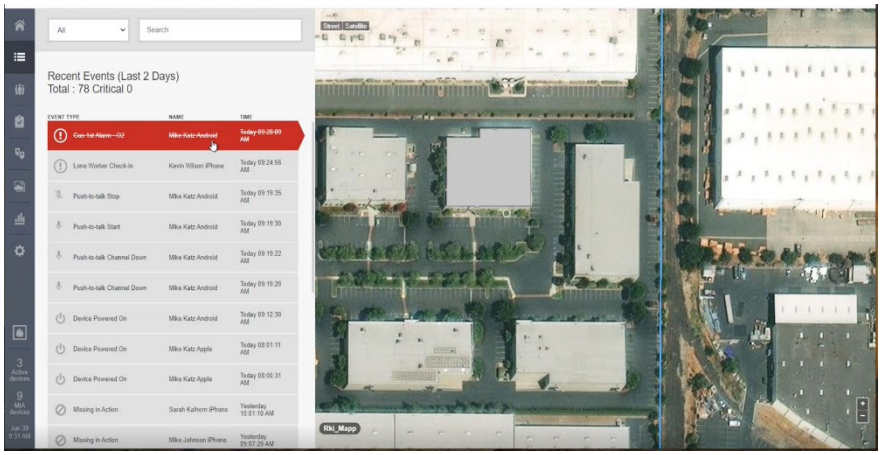

Figure 51: Resolved gas alert on SCC

12.1.5 Supported Gas Detector List

RKI GX-3R Pro 4- and 5-gas detectors. For more information on RKI gas detectors, please visit www.rkiinstruments.com/product/gx-3r-pro.

12.2 Lone Worker Solution

The Guardhat Lone Worker solution automates critical safety alerts and enables full AV communications between workers in the field and remote SCC admins and field teams or individuals, so that industrial operators that work alone, distributed, or in remote locations can more quickly complete tasks while helping to ensure they get home safe at the end of each shift. Available on the Guardhat iOS mobile app, and coming soon on the Guardhat Android mobile app, the solution provides timed, hazardous work check-ins, fall-detection, worker-down alerts, and digital incident management, and audio/visual calling, media capture and push-to-talk (PTT) communications.

From the SCC, you can easily denote Lone Workers by the LW on their green dots.

Figure 52: Lone Worker seen on SCC

User can be made Lone Workers by changing settings within the SCC. By default, this setting is turned off when you add a new user.

To modify Lone Worker settings, follow these steps:

1. Log in to the SCC.
2. Click on the "Administration" (cog) icon.
3. Hover over the "My Profile" down-facing caret and select the "User Manager" menu link.
4. To find the intended user, type the name in the "User" text field. You may press Enter or wait for the focused list.
5. Click on the intended user's name to access settings.
6. Click on the "Edit" icon in the upper right.
7. To enable Lone Worker, select Enable from the "Lone Worker Mode" drop-down menu.
8. Click on the "Save" icon in the upper right.
9. Click on the "Confirm" button.
10. You will see confirmation of the change in the lower right portion of the SCC screen.

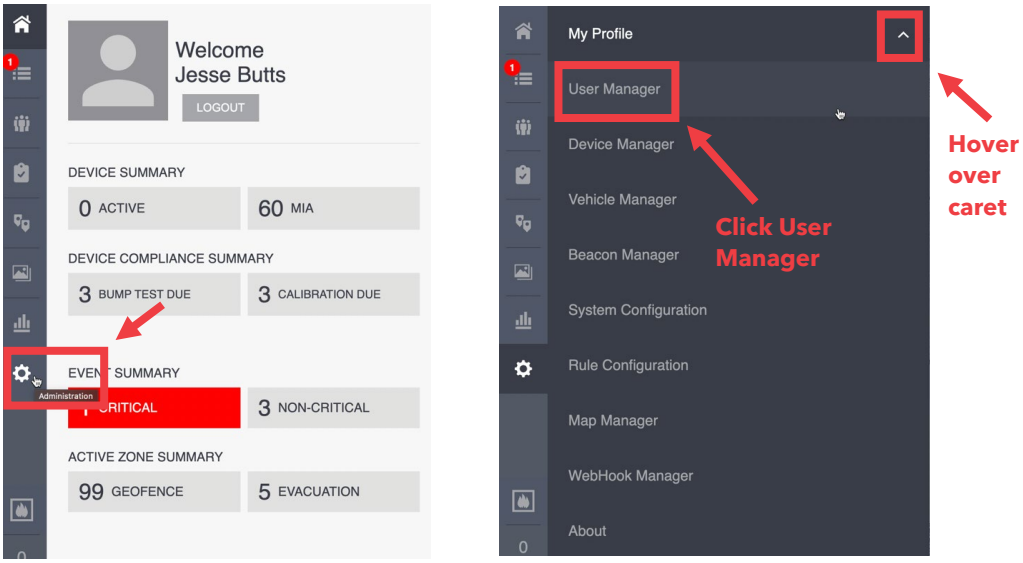

Figure 53: Enabling Lone Worker Mode: Part 1

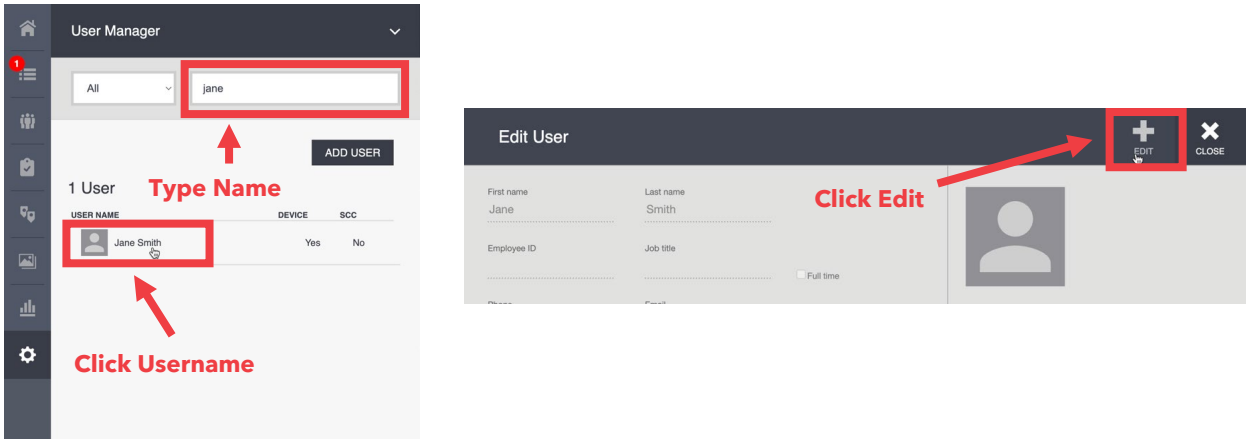

Figure 54: Enabling Lone Worker Mode: Part 2

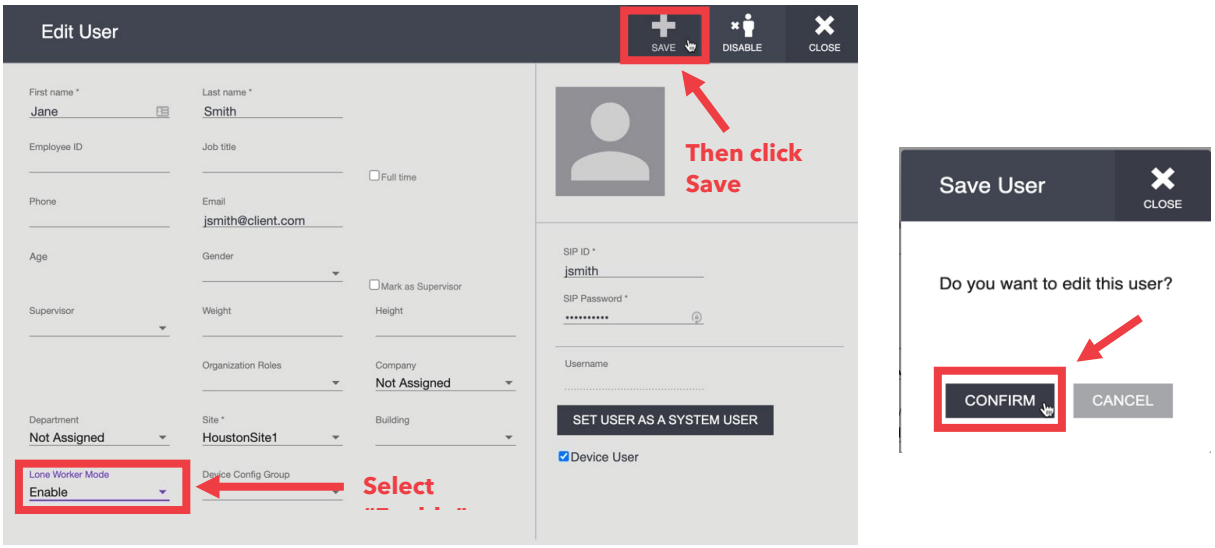

Figure 55: Enabling Lone Worker Mode: Part 3

13 Troubleshooting

13.1 Clear Browser Cache

Occasionally, your web browser's **cache** (web pages and other media stored on your hard drive or phone to help websites you've visited load faster) needs to be cleared when an SCC update is available. Clearing the cache forces the browser to retrieve the newest information available from the SCC, and it could free up space on your phone or computer.

How to clear your cache for in Google Chrome

13.2 Contact Us

If you run into bigger issues, call RKI Instruments, Inc., or reach out to us at:

RKI Instruments, Inc.
33248 Central Ave.
Union City, CA 94587
apps.team@rkiinstruments.com
www.rkiinstruments.com