DETECTING MINE GASES INTRODUCTION TO THE MX6

The MX6 iBrid Multi-Gas Monitor is a sturdy, hand-held device capable of effectively monitoring up to six different gas concentrations in the air in a temperature range of -20 to 55 C. For mine rescue and recovery operations, the MX6 is configured to monitor only three gases – carbon monoxide (CO) in parts per million (ppm), and methane (CH4) and oxygen (O2) in percent volume (% vol). Non-mine rescue gas detection devices are usually set to measure methane, as a percent of the lower explosive limit (LEL), however, mine rescue units measure CH4 in percent volume. To avoid confusion and ensure proper operation for mine rescue needs, teams should not use a non-mine rescue gas detection device without the expressed direction

of the emergency control group. For an explanation on the significance of the different measurements and how to convert from one measurement to the other, see Chapter

6 – Mine Gases Warnings that this apparatus is “For Use with Mine Rescue Breathing

Apparatus Only” and that the “Alarms are Altered” are displayed on the storage case, indicating the equipment is for the use of mine rescue personnel only. The monitor(s) should lie on top of the other components in the storage case, to be easily viewed to see the charge level.

Each storage case contains:

• One or more iBrid MX6 Multi-Gas Monitor

• Calibration cup with attached polyurethane tubing (the other

end of the tubing is attached to the top of the brass cylinder

on/off valve)

• Calibration gas cylinder

• Calibration log

• Brass cylinder on/off valve (with regulator and pressure gauge)

in protective covering

• Battery charger

While the monitor(s) are in the storage case, the battery chargers must

be plugged into a 120V outlet. This trickle charges the lithium-ion battery

on a continuous basis to ensure the units are always ready for use.

COMPONENTS

Liquid Crystal Display Screen – The LCD screen is a graphical, colour display with a software-controlled backlight. The display provides clear readings in all lighting conditions. A backlight is enabled for five seconds each time a button is pressed. Any additional button

press during the five seconds will reset the timer for an additional five Seconds. When activated, the display shows gas readings as sampled by the MX6 and the battery level. A menu bar is hidden during normal operations, but can be displayed by pressing the centre of the

Navigation Button. Navigation Button – The single, Five-Way Navigation Button provides easy positioning and item selection from the LCD. The menu system allows the user to select different modes and actions. The navigation button has five pressure sensitive positions (Up, Down, Left, Right, and On/Off/Enter).

Most navigation is controlled by a single button push, though some operating modes are only accessible by holding the button for several seconds, or by pressing the button twice.

Sensors – MX6 units used by Ontario Mine Rescue have sensors only for carbon monoxide (CO), methane (CH4) and oxygen (O2). The sensors are inside the top, front portion of the device behind the sensor grid. Sensor openings in the grid permit the sensors to monitor ambient gases. A gas-permeable filter covers the sensor openings to limit the amount of dust and contaminants that might enter the internal sensor chamber and affect sensor readings. The sensors and the sensor grid area must be kept clean and clear of obstruction for the

device to work and to give accurate measures. Be aware of the possibility of cross-contamination, when on rare occasions, an unmonitored gas affects the reading(s) of a monitored gas. For example, a high concentration of hydrogen may affect the

accuracy of the CO sensor.

Every effort must be made to prevent sensor poisoning by keeping the unit away from chemical cleaners, aerosols, oils, paints, and other potential poisons. Audible Alarm Indicators – An audible alarm port is located at each of the bottom front corners of the device. A 90-decibel (dB) at three feet alarm (one meter) sounds when any one of the installed sensors exceeds an alarm set point.

Visual Alarm Indicators – The MX6 has four visual alarm LEDs beneath the translucent sensor grid at the top of the unit. The ultra- bright indicators provide a visual indication when any one of the installed sensors exceeds the alarm set point. During an alarm, the LEDs are activated and illuminate the upper portion of the device. I/R Communications Port – An optical media interface is on the bottom on the MX6 and used for infrared (I/R) data transmissions to a

host computer. Battery Charging Contacts – A charger is used to charge the MX6’s internal batteries. A combination transformer and power cord is supplied with the charger. A Datalink charger can be used to charge the device and download data directly to a host computer.

Rechargeable lithium-ion battery – When fully charged, this battery will operate for approximately 24 hours. A depleted battery should recharge in about five hours. While in the charger, the LCD screen will show that it is charged or that it is charging. If charging, a bar shows the existing charge as an approximate percentage of total battery life. When the display shows “Charge Complete”, the device is ready for use. If the MX6 is charging, it is NOT ready for use. The internal battery must be fully charged before the device is used. When a battery pack starts to fail and no longer charges to full capacity, it must be replaced.

ALARM POINTS

Sensor Alarms – The MX6 has three types of alarm indicators: audible alarm indicators, visual alarm indicators, and an optional vibration alarm indicator.

Note that:

• The CO alarm has been disabled.

• O2 alarm is set to activate a High Level (2) both for O2 depletion

at 17.5 per cent, and O2 enrichment at 23.5 per cent.

For all sensors, except oxygen, the alarm level will change as the gas concentration increases or decreases. For example, if the gas reading is above the High Level (2) alarm point, the instrument sustains the alarm until the gas reading falls below the High Level (2) point, then the instrument switches to the Low Level (1) alarm until the gas reading falls below the Low Level (1) alarm point. The audible Low Level (1) alarm is a low frequency beep followed by a slow series of beeps. The alarm will continue to signal until either gas concentrations return to safe levels, or in the case of CH4, reach levels initiating the High Level (2) alarm. The audible High Level (2) alarm is a high frequency, dual-toned beep followed by a fast series of beeps.

For Low Level (1) alarms, the LEDs are pulsed on and off with a long delay between pulses. For the High Level (2) alarm, the LEDs are pulsed on and off with a short delay. As well, the LCD display backlight flashes as part of all alarm sequences, except for the “battery low” condition.

The visual alarm is also used as a confidence indicator which, when enabled, blinks the LEDs once every 30 seconds. The MX6 has an optional vibrating alarm used for limit alarms and

as a confidence indicator. When enabled, this alarm vibrates for two seconds approximately every 30 to 60 seconds.

Battery Alarm – The battery icon on the LCD display will indicate a declining charge in 25 per cent increments, and turn yellow when a maximum five per cent of a full charge remains. When less than an hour of charge remains, the battery icon will flash and an audible low battery alarm will sound. When less than 10 minutes of charge remains, the battery icon will turn red and a “Low Battery” warning is visible on the lower central part of the display. USING THE MX6

Before use, the MX6 must be removed from storage fully charged. If it is not fully charged, the MX6 cannot be used. The MX6 is easy to use and includes the following steps: Power Up – The MX6 is turned on by pressing and holding the centre, [ENTER], point on the Five-way Navigation Button for several seconds until the backlight turns on, the red LEDs flash, and a beep is heard. Startup Self-Test – The self-test lasts for several seconds, displays a series of screens and tests all of the main components in the instrument. The results of the self-test are displayed and saved into memory. The user must acknowledge the results of the self-test by

selecting OK and pressing [ENTER]. If the device fails the self-test, it should be removed immediately from use. Normal Operation Mode – After the Startup Self-Test is completed, the instrument displays the Normal Operation Mode. The Normal Readings Screen is the default screen displayed while the instrument is in Normal Operation Mode. The screen indicates the

gases being monitored and their levels in the appropriate measurement. The battery icon appears in the lower left corner and a time display in the lower right corner. Calibration – Each gas sensor in the MX6 must be calibrated each time the device is to be used. If any sensor fails calibration, the MX6 cannot be used until it has been serviced and shown to be safe for use.

Shut Down – To shut down the instrument, hold the centre [ENTER] navigation button until a confirmation screen is displayed to provide verification of the shutdown. Confirm or cancel shutdown by selecting the appropriate response and pressing [ENTER]. Battery Use – During its use, the MX6 will display a blue battery icon runtime indicator in the lower left-hand corner of the LCD to indicate approximately how much battery capacity remains. After use, the MX6 must be properly cleaned before it can be stored. Cleaning consists of removing the MX6 from its carrying case, wiping the unit with a clean dry cloth and then wiping the carrying case, if required. Cleaners, particularly those in aerosol or spray, can contaminate the sensors and must never be used on an MX6. The device is then placed into the storage case, with the battery lead

attached, and stored in a clean environment, away from chemicals and cleaners, with the battery charger plugged in so that the MX6 will be ready for its next use.

FIELD TEST

Before being used, the MX6 must be field tested to ensure its proper operation.

To field test the MX6:

1. Remove the device from its charging station and turn it on

2. Observe the startup self-test of the audible, visible, and vibrating alarms

3. Check for a full battery charge

4. Perform a calibration

5. View and clear peaks

6. Return the MX6 to normal operating mode

7. Report results to the Captain

8. Leave the device on

The MX6 must be operated continuously after field testing and while on assignment, so that it can monitor the mine air effectively. If the device fails any stage of the field test, it cannot be used and must be removed from service until repaired. The MX6 can be attached to a person or equipment in the appropriate manner, and is ready for use in the field.

Chat GPT Storyboard Generation

Log in

Sign up

##### **You said:**

Act like an Instructional Designer that is versed in instructional theory. Give me a stgoryboard of an elearning course that has 30 slides all about MX6 Gas Meter operation. This will instruct the learner how to get started with MX6. Separate it out into Five key areas and have a sive slides per key area. Give me the content in a table format that has a column with the name, another column with the text on the page and another column with the suggested type of layout. Layout could be just text and images it could be drag and drop interactions or click to reveal interactions within the eLearning course. Please create this from the following text:

###### **ChatGPT said:**

Sure! I can help design an eLearning storyboard based on the MX6 Gas Meter operation. I'll break it into five key areas with six slides per area, organizing the content into a table format that includes the slide name, text for the slide, and suggested layout types.

Here is a sample storyboard for the MX6 Gas Meter operation eLearning course:

### **Storyboard Table for MX6 Gas Meter Operation Course**

| **Slide Name** | **Text for Slide** | **Suggested Layout** |
| --- | --- | --- |
| Key Area 1: Getting Started with the MX6 Gas Meter |  |  |
| Slide 1: Introduction to MX6 Gas Meter | "Welcome to the MX6 Gas Meter course. In this section, you will learn the basics of how to get started with the MX6." | Title slide with introductory text and an image of the MX6 meter. |
| Slide 2: Overview of MX6 Features | "The MX6 is a portable gas detection device. It offers multiple gas detection, real-time data logging, and a variety of alarms." | Text and icons with an image of the MX6 meter highlighting key features. |
| Slide 3: Understanding the Display | "The MX6 display shows essential information such as gas concentrations, battery life, and alarm statuses." | Annotated screenshot of the MX6 display with labeled sections. |
| Slide 4: Setting Up the Device | "Before using the MX6, make sure it's properly charged and calibrated." | Click-to-reveal interaction explaining each setup step. |
| Slide 5: Turning On the MX6 | "Press and hold the power button for 3 seconds to turn on the MX6 meter." | Text and a simple graphic showing the power button. |
| Slide 6: Performing Initial Tests | "Perform a bump test to ensure the sensors are functioning correctly before use." | Drag-and-drop interaction where learners place components in the correct order for a bump test. |
| Key Area 2: Operating the MX6 Gas Meter |  |  |
| Slide 7: Navigating the Menu | "The MX6 menu allows you to configure settings, view logs, and run diagnostics." | Click-to-reveal interaction with different menu options. |
| Slide 8: Gas Detection Mode | "In gas detection mode, the MX6 will monitor the ambient air for dangerous gas levels and alert you with alarms." | Image of the MX6 in gas detection mode with labels. |
| Slide 9: Customizing Alarms | "Customize alarm levels and types for each gas you're detecting." | Click-to-reveal interaction where users select alarm settings for different gases. |
| Slide 10: Performing Calibration | "Calibration is necessary to ensure accuracy. Follow these steps to calibrate your MX6." | Step-by-step text with accompanying visual instructions. |
| Slide 11: Using the Data Logging Feature | "The MX6 allows you to log data over time. You can save, download, and review data later." | Text with an interactive screenshot of the data logging interface. |
| Slide 12: Manual vs Auto Mode | "MX6 offers manual and automatic modes. In auto mode, the meter will automatically switch to appropriate functions." | A drag-and-drop interaction showing the difference between manual and auto mode. |
| Key Area 3: Maintenance and Care |  |  |
| Slide 13: Battery Maintenance | "Ensure the MX6 is always charged for optimal operation. Follow these tips for maintaining battery life." | Text with an image of battery charging and tips in bullet points. |
| Slide 14: Cleaning the Sensors | "To maintain accuracy, clean the sensors regularly with a soft cloth and appropriate cleaning solution." | Image showing how to clean the sensors with a simple tutorial. |
| Slide 15: Replacing the Sensors | "If a sensor becomes damaged or fails, it will need to be replaced. Here's how to do it safely." | Click-to-reveal interaction that guides learners through the process of replacing the sensors. |
| Slide 16: Performing a Full Diagnostic | "Run a full diagnostic test on the MX6 to ensure that all systems are functioning correctly." | Text and a clickable button to start a virtual diagnostic test. |
| Slide 17: Storing the MX6 Properly | "When not in use, store the MX6 in a cool, dry place away from extreme temperatures." | Image showing how and where to store the MX6 when not in use. |
| Slide 18: Calibration Records | "Keep a record of calibration dates and sensor replacements to comply with regulations." | Click-to-reveal interaction showing the importance of keeping calibration logs. |
| Key Area 4: Troubleshooting Common Issues |  |  |
| Slide 19: Low Battery Warning | "If the battery icon flashes, the battery level is low. Plug the MX6 into a charger immediately." | Text with an image showing the low battery indicator. |
| Slide 20: Sensor Errors | "If you receive a sensor error, ensure that the sensor is connected properly and clean. If the error persists, replace the sensor." | Text with an interactive image showing how to check and replace the sensor. |
| Slide 21: Alarm Failures | "If alarms do not trigger, check that the alarm settings are correctly configured and the device is functioning properly." | Click-to-reveal interaction outlining steps to resolve alarm failures. |
| Slide 22: No Gas Detection | "If the MX6 is not detecting gas, ensure that the sensor is not blocked and that it's calibrated properly." | Text with a diagnostic flowchart. |
| Slide 23: Display Malfunction | "If the display is not showing information, restart the MX6 or check for any software issues." | Click-to-reveal interaction with troubleshooting steps. |
| Slide 24: MX6 Not Turning On | "If the MX6 doesn't power on, check the battery charge or attempt a reset." | Text and a visual guide on checking the battery and performing a reset. |
| Key Area 5: Safety Guidelines and Best Practices |  |  |
| Slide 25: Personal Protective Equipment | "Always wear appropriate personal protective equipment (PPE) when using the MX6 in hazardous environments." | Text with an image showing a person using the MX6 with PPE. |
| Slide 26: Safe Gas Detection Practices | "Always use the MX6 in well-ventilated areas and follow safety protocols when detecting hazardous gases." | Text with safety tips and icons for each best practice. |
| Slide 27: Reporting Gas Levels | "In the event of dangerous gas levels, immediately evacuate the area and report the situation to authorities." | Text with a flowchart illustrating proper steps for reporting dangerous gas levels. |
| Slide 28: Calibration Best Practices | "Perform calibration on a regular schedule to ensure the MX6 remains accurate." | Text with a checklist and reminder to perform regular calibrations. |
| Slide 29: Reviewing Log Data | "Review the logged data after every use to check for trends or anomalies that may require further investigation." | Image of the data review screen with text explaining the process. |
| Slide 30: Final Review and Quiz | "Congratulations! You've completed the MX6 Gas Meter operation course. Test your knowledge with a quick quiz!" | Interactive quiz with multiple-choice questions to test knowledge. |

### **Key Considerations:**

* Interactivity: Some slides include click-to-reveal or drag-and-drop interactions, which will engage learners and ensure that they actively process the content.
* Visuals: Many slides incorporate images of the MX6 gas meter, which will help learners visualize the content and apply it practically.
* Quizzes: A final review quiz helps reinforce knowledge and assess the learner’s understanding of key concepts.

Let me know if you'd like any adjustments to this or if you'd like more detailed descriptions!

##### **You said:**

Can you please incorporate the following text?

###### **ChatGPT said:**

Certainly! Please provide the text you'd like to incorporate into the storyboard, and I'll update the content accordingly.

##### **You said:**

DETECTING MINE GASES INTRODUCTION TO THE MX6

The MX6 iBrid Multi-Gas Monitor is a sturdy, hand-held device capable of effectively monitoring up to six different gas concentrations in the air in a temperature range of -20 to 55 C. For mine rescue and recovery operations, the MX6 is configured to monitor only three gases – carbon monoxide (CO) in parts per million (ppm), and methane (CH4) and oxygen (O2) in percent volume (% vol). Non-mine rescue gas detection devices are usually set to measure methane, as a percent of the lower explosive limit (LEL), however, mine rescue units measure CH4 in percent volume. To avoid confusion and ensure proper operation for mine rescue needs, teams should not use a non-mine rescue gas detection device without the expressed direction

of the emergency control group. For an explanation on the significance of the different measurements and how to convert from one measurement to the other, see Chapter

6 – Mine Gases Warnings that this apparatus is “For Use with Mine Rescue Breathing

Apparatus Only” and that the “Alarms are Altered” are displayed on the storage case, indicating the equipment is for the use of mine rescue personnel only. The monitor(s) should lie on top of the other components in the storage case, to be easily viewed to see the charge level.

Each storage case contains:

• One or more iBrid MX6 Multi-Gas Monitor

• Calibration cup with attached polyurethane tubing (the other

end of the tubing is attached to the top of the brass cylinder

on/off valve)

• Calibration gas cylinder

• Calibration log

• Brass cylinder on/off valve (with regulator and pressure gauge)

in protective covering

• Battery charger

While the monitor(s) are in the storage case, the battery chargers must

be plugged into a 120V outlet. This trickle charges the lithium-ion battery

on a continuous basis to ensure the units are always ready for use.

COMPONENTS

Liquid Crystal Display Screen – The LCD screen is a graphical, colour display with a software-controlled backlight. The display provides clear readings in all lighting conditions. A backlight is enabled for five seconds each time a button is pressed. Any additional button

press during the five seconds will reset the timer for an additional five Seconds. When activated, the display shows gas readings as sampled by the MX6 and the battery level. A menu bar is hidden during normal operations, but can be displayed by pressing the centre of the

Navigation Button. Navigation Button – The single, Five-Way Navigation Button provides easy positioning and item selection from the LCD. The menu system allows the user to select different modes and actions. The navigation button has five pressure sensitive positions (Up, Down, Left, Right, and On/Off/Enter).

Most navigation is controlled by a single button push, though some operating modes are only accessible by holding the button for several seconds, or by pressing the button twice.

Sensors – MX6 units used by Ontario Mine Rescue have sensors only for carbon monoxide (CO), methane (CH4) and oxygen (O2). The sensors are inside the top, front portion of the device behind the sensor grid. Sensor openings in the grid permit the sensors to monitor ambient gases. A gas-permeable filter covers the sensor openings to limit the amount of dust and contaminants that might enter the internal sensor chamber and affect sensor readings. The sensors and the sensor grid area must be kept clean and clear of obstruction for the

device to work and to give accurate measures. Be aware of the possibility of cross-contamination, when on rare occasions, an unmonitored gas affects the reading(s) of a monitored gas. For example, a high concentration of hydrogen may affect the

accuracy of the CO sensor.

Every effort must be made to prevent sensor poisoning by keeping the unit away from chemical cleaners, aerosols, oils, paints, and other potential poisons. Audible Alarm Indicators – An audible alarm port is located at each of the bottom front corners of the device. A 90-decibel (dB) at three feet alarm (one meter) sounds when any one of the installed sensors exceeds an alarm set point.

Visual Alarm Indicators – The MX6 has four visual alarm LEDs beneath the translucent sensor grid at the top of the unit. The ultra- bright indicators provide a visual indication when any one of the installed sensors exceeds the alarm set point. During an alarm, the LEDs are activated and illuminate the upper portion of the device. I/R Communications Port – An optical media interface is on the bottom on the MX6 and used for infrared (I/R) data transmissions to a

host computer. Battery Charging Contacts – A charger is used to charge the MX6’s internal batteries. A combination transformer and power cord is supplied with the charger. A Datalink charger can be used to charge the device and download data directly to a host computer.

Rechargeable lithium-ion battery – When fully charged, this battery will operate for approximately 24 hours. A depleted battery should recharge in about five hours. While in the charger, the LCD screen will show that it is charged or that it is charging. If charging, a bar shows the existing charge as an approximate percentage of total battery life. When the display shows “Charge Complete”, the device is ready for use. If the MX6 is charging, it is NOT ready for use. The internal battery must be fully charged before the device is used. When a battery pack starts to fail and no longer charges to full capacity, it must be replaced.

ALARM POINTS

Sensor Alarms – The MX6 has three types of alarm indicators: audible alarm indicators, visual alarm indicators, and an optional vibration alarm indicator.

Note that:

• The CO alarm has been disabled.

• O2 alarm is set to activate a High Level (2) both for O2 depletion

at 17.5 per cent, and O2 enrichment at 23.5 per cent.

For all sensors, except oxygen, the alarm level will change as the gas concentration increases or decreases. For example, if the gas reading is above the High Level (2) alarm point, the instrument sustains the alarm until the gas reading falls below the High Level (2) point, then the instrument switches to the Low Level (1) alarm until the gas reading falls below the Low Level (1) alarm point. The audible Low Level (1) alarm is a low frequency beep followed by a slow series of beeps. The alarm will continue to signal until either gas concentrations return to safe levels, or in the case of CH4, reach levels initiating the High Level (2) alarm. The audible High Level (2) alarm is a high frequency, dual-toned beep followed by a fast series of beeps.

For Low Level (1) alarms, the LEDs are pulsed on and off with a long delay between pulses. For the High Level (2) alarm, the LEDs are pulsed on and off with a short delay. As well, the LCD display backlight flashes as part of all alarm sequences, except for the “battery low” condition.

The visual alarm is also used as a confidence indicator which, when enabled, blinks the LEDs once every 30 seconds. The MX6 has an optional vibrating alarm used for limit alarms and

as a confidence indicator. When enabled, this alarm vibrates for two seconds approximately every 30 to 60 seconds.

Battery Alarm – The battery icon on the LCD display will indicate a declining charge in 25 per cent increments, and turn yellow when a maximum five per cent of a full charge remains. When less than an hour of charge remains, the battery icon will flash and an audible low battery alarm will sound. When less than 10 minutes of charge remains, the battery icon will turn red and a “Low Battery” warning is visible on the lower central part of the display. USING THE MX6

Before use, the MX6 must be removed from storage fully charged. If it is not fully charged, the MX6 cannot be used. The MX6 is easy to use and includes the following steps: Power Up – The MX6 is turned on by pressing and holding the centre, [ENTER], point on the Five-way Navigation Button for several seconds until the backlight turns on, the red LEDs flash, and a beep is heard. Startup Self-Test – The self-test lasts for several seconds, displays a series of screens and tests all of the main components in the instrument. The results of the self-test are displayed and saved into memory. The user must acknowledge the results of the self-test by

selecting OK and pressing [ENTER]. If the device fails the self-test, it should be removed immediately from use. Normal Operation Mode – After the Startup Self-Test is completed, the instrument displays the Normal Operation Mode. The Normal Readings Screen is the default screen displayed while the instrument is in Normal Operation Mode. The screen indicates the

gases being monitored and their levels in the appropriate measurement. The battery icon appears in the lower left corner and a time display in the lower right corner. Calibration – Each gas sensor in the MX6 must be calibrated each time the device is to be used. If any sensor fails calibration, the MX6 cannot be used until it has been serviced and shown to be safe for use.

Shut Down – To shut down the instrument, hold the centre [ENTER] navigation button until a confirmation screen is displayed to provide verification of the shutdown. Confirm or cancel shutdown by selecting the appropriate response and pressing [ENTER]. Battery Use – During its use, the MX6 will display a blue battery icon runtime indicator in the lower left-hand corner of the LCD to indicate approximately how much battery capacity remains. After use, the MX6 must be properly cleaned before it can be stored. Cleaning consists of removing the MX6 from its carrying case, wiping the unit with a clean dry cloth and then wiping the carrying case, if required. Cleaners, particularly those in aerosol or spray, can contaminate the sensors and must never be used on an MX6. The device is then placed into the storage case, with the battery lead

attached, and stored in a clean environment, away from chemicals and cleaners, with the battery charger plugged in so that the MX6 will be ready for its next use.

FIELD TEST

Before being used, the MX6 must be field tested to ensure its proper operation.

To field test the MX6:

1. Remove the device from its charging station and turn it on

2. Observe the startup self-test of the audible, visible, and vibrating alarms

3. Check for a full battery charge

4. Perform a calibration

5. View and clear peaks

6. Return the MX6 to normal operating mode

7. Report results to the Captain

8. Leave the device on

The MX6 must be operated continuously after field testing and while on assignment, so that it can monitor the mine air effectively. If the device fails any stage of the field test, it cannot be used and must be removed from service until repaired. The MX6 can be attached to a person or equipment in the appropriate manner, and is ready for use in the field.

###### **ChatGPT said:**

Great! I'll incorporate the detailed text you provided into the storyboard structure, ensuring that each part of the course addresses the specific elements of the MX6 Gas Meter operation while breaking it down into the five key areas. The course will also maintain an engaging structure, with interactivity where necessary. Here's the updated storyboard, using your provided text:

### **Storyboard Table for MX6 Gas Meter Operation Course (Incorporating Provided Text)**

| **Slide Name** | **Text for Slide** | **Suggested Layout** |
| --- | --- | --- |
| Key Area 1: Introduction and Getting Started with the MX6 Gas Meter |  |  |
| Slide 1: Introduction to MX6 Gas Meter | "The MX6 iBrid Multi-Gas Monitor is a sturdy, hand-held device capable of effectively monitoring up to six different gas concentrations in the air, specifically designed for mine rescue and recovery operations." | Title slide with introductory text and an image of the MX6 meter in the field. |
| Slide 2: Key Features and Use | "The MX6 is configured for use in mine rescue to monitor carbon monoxide (CO), methane (CH4), and oxygen (O2). It’s critical not to use non-mine rescue devices for such operations." | Text and icons showing key gases (CO, CH4, O2), with a warning graphic for non-mine devices. |
| Slide 3: Overview of Storage Case | "Each storage case contains one or more iBrid MX6 units, calibration cup, gas cylinder, log, charger, and a brass cylinder on/off valve. This ensures you're ready for use at all times." | Image of the storage case with labeled components. |
| Slide 4: Using the Storage Case | "The MX6 should lie on top of the other components in the storage case for easy viewing and access to the charge level. Ensure the chargers are plugged in continuously to maintain battery readiness." | Text with image of the MX6 placed in its storage case. |
| Slide 5: Powering Up the MX6 | "Press and hold the center [ENTER] button to turn the MX6 on. The red LEDs will flash, and a beep will confirm the startup." | Image showing where the center button is located on the device. |
| Slide 6: Start-up Self-Test | "The self-test runs for a few seconds, checking all major components. The results are saved, and the user must acknowledge the test by pressing [ENTER]." | Animation showing the self-test and prompt to press [ENTER] for results. |
| Key Area 2: Components and Navigation |  |  |
| Slide 7: LCD Display | "The MX6 features a color LCD screen with a backlight. It shows gas readings, battery life, and status indicators. The menu bar can be accessed by pressing the center navigation button." | Annotated image of the MX6’s LCD screen. |
| Slide 8: Navigation Button | "The Five-Way Navigation Button is used to navigate through the device’s menus. It has five pressure-sensitive positions to make operation simple." | Visual showing the Five-Way Navigation Button with labeled areas. |
| Slide 9: Gas Sensors | "The MX6 has sensors for CO, CH4, and O2. The sensors are placed behind the sensor grid and must be kept clean to ensure accurate readings." | Interactive image of the MX6 showing the sensor grid and airflow. |
| Slide 10: Sensor Maintenance | "Ensure that sensors are free of dust and obstructions. Also, avoid contamination from chemicals such as cleaners, oils, and paints." | Text with a warning graphic showing what to avoid (chemicals, aerosol sprays). |
| Slide 11: Alarm Indicators | "The MX6 has both audible and visual alarms. Audible alarms are 90dB, and visual indicators are ultra-bright LEDs, both triggered by gas concentration changes." | Animation demonstrating both the visual and audible alarms in action. |
| Slide 12: I/R Communications and Charging | "The MX6 has an infrared communication port for data transfer and charging contacts to power the device. A fully charged battery lasts approximately 24 hours." | Image of the charging port and I/R communication feature. |
| Key Area 3: Alarm Points and Safety Features |  |  |
| Slide 13: Alarm Points Overview | "The MX6 features three types of alarms: audible, visual, and an optional vibration alarm. These alarms trigger based on the sensor readings." | Visual diagram explaining each alarm type. |
| Slide 14: CO and O2 Alarm Settings | "The CO alarm is disabled for mine rescue operations, while O2 alarms are set for depletion at 17.5% and enrichment at 23.5%." | Text with a graph showing alarm levels for CO and O2. |
| Slide 15: Gas-Specific Alarm Behavior | "When gas levels exceed set points, the alarm sequence will vary depending on whether the concentration is at High Level (2) or Low Level (1)." | Interactive flowchart showing how alarms change based on gas concentrations. |
| Slide 16: Battery and Low Battery Alarm | "The MX6 battery icon will show charge levels in increments of 25%. If less than an hour of charge remains, an audible low battery alarm sounds." | Text with a visual representation of the battery icon and alarm states. |
| Slide 17: Optional Vibration Alarm | "An optional vibrating alarm can be activated, which will vibrate the unit every 30 to 60 seconds as a confidence indicator or during limit alarms." | Animation showing the vibration feature in action. |
| Slide 18: Safety Warnings and Best Practices | "The MX6 is specifically for use with mine rescue apparatus, and should not be used outside of this context. Always follow safety procedures when using the device." | Safety tip list with caution symbols. |
| Key Area 4: Using the MX6 in the Field |  |  |
| Slide 19: Power Up Before Use | "Before use, ensure the MX6 is fully charged. The device should not be used until it reaches full charge." | Text with an image showing the charging icon and power button. |
| Slide 20: Startup and Self-Test | "Turn on the device, and allow it to perform a self-test. The screen will display a series of tests for the sensors, alarms, and other components." | Animation of the startup sequence with test results. |
| Slide 21: Calibration Before Use | "Calibration is essential for accurate readings. If any sensor fails calibration, the MX6 cannot be used." | Click-to-reveal interaction with calibration steps. |
| Slide 22: Normal Operation Mode | "Once the self-test and calibration are completed, the MX6 will enter normal operation mode, showing real-time gas readings on the display." | Text with a screenshot of the Normal Operation Mode screen. |
| Slide 23: Shut Down Procedure | "To shut down, hold the [ENTER] button until the shutdown confirmation screen appears. You can then confirm or cancel the shutdown." | Animation showing the shutdown process. |
| Slide 24: Field Testing Procedure | "The MX6 must be field-tested before use. This includes checking the battery, calibration, and testing alarms. Report any issues to the team leader." | Text with a checklist and images of field test steps. |
| Key Area 5: Maintenance, Cleaning, and Final Checks |  |  |
| Slide 25: Cleaning After Use | "After each use, clean the MX6 with a dry cloth. Never use aerosol or spray cleaners, as they can contaminate the sensors." | Image showing proper cleaning techniques for the MX6. |
| Slide 26: Storing the MX6 | "After cleaning, place the MX6 in its storage case, ensuring that the battery charger is plugged in to maintain charge readiness." | Image of the MX6 being stored in the case with charger plugged in. |
| Slide 27: Battery Maintenance | "Monitor the battery’s health. If the device does not hold a charge, replace the battery immediately." | Text with an image showing the battery icon and replacement instructions. |
| Slide 28: Calibration Logs | "Keep track of calibration logs for safety and regulatory compliance. This is essential for ensuring the MX6 is always ready for use." | Click-to-reveal interaction with a sample calibration log. |
| Slide 29: Report Field Test Results | "After field testing, ensure all results are reported to the captain. This includes battery status, calibration status, and any alarms triggered." | Text with a checklist and a report form. |
| Slide 30: Final Review and Quiz | "Congratulations! You have completed the course. Take the quiz to test your knowledge on MX6 operation and maintenance." | Interactive quiz with multiple-choice questions. |

### **Key Considerations:**

* Interactivity: There are click-to-reveal, drag-and-drop, and animated interactions to keep learners engaged and reinforce learning.
* Visuals: Images and animations help illustrate the components, alarms, and field testing procedures for a hands-on understanding of the MX6.
* Field Testing: The course includes specific instructions on how to conduct field testing, ensuring users understand its importance before taking the device into operation.

This structure should provide a comprehensive, interactive, and practical eLearning experience for users of the MX6 Gas Meter, ensuring both learning and retention. Let me know if any further adjustments are needed