Instructor Led Simulation Guide
Hazardous Waste On Site Examination

Introduction

This guide provides an immersive learning experience focused on the onsite identification and examination of hazards, without remediation, to help participants understand and apply proper procedures while present at hazardous waste sites. In alignment with OSHA requirements under 29 CFR 1910.120, participants will conduct a controlled site walk to identify potential risks, examine hazardous objects up close, document findings, and assess environmental factors around the site perimeter without directly handling or engaging with hazardous materials.

This simulation is time-bound, requiring participants to mark all identified objects as examined and safely return to the starting base; detailed success and failure conditions are outlined in the Success Requirements and Failure Contingency sections.

Pre Brief

The onsite pre-brief prepares participants for the simulation by establishing the objectives, roles, and operational context for conducting hazard identification and examination activities at a hazardous waste site.

Objectives: Participants will learn how to conduct a systematic onsite walk-through to identify and examine potential hazards without performing remediation. Objectives include recognizing site vulnerabilities such as unsecured areas, assessing environmental influences (including wind direction and potential contamination pathways), and practicing proper observation and documentation techniques in accordance with established procedures.

Participants' Roles: Each participant is responsible for carrying out assigned tasks during the onsite assessment and for accurately documenting observations and findings. Clear understanding of individual responsibilities ensures effective data collection and situational awareness throughout the site walk.

Facilitator's Role: Guide participants through the onsite process, provide feedback, and encourage critical thinking. This includes asking reflective questions such as, "What could be the impact if a hazard is overlooked during an onsite assessment?" and leading group discussions focused on identifying potential site hazards and evaluating observed conditions.

Failure Contingency: Participants may fail the onsite simulation if any of the following occur: running out of oxygen before returning to the base, or being unable to examine all identified hazards within the allotted oxygen time limit, even if the base is reached. In the event of failure, participants will have the option to restart the simulation while retaining previously examined objects as marked, or to restart the simulation from the beginning.

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Debrief

The debrief supports participant reflection and reinforces key learning outcomes from the onsite hazard identification exercise. Conduct the debrief immediately after the simulation or shortly afterward to encourage meaningful reflection and discussion.

Summary: Review the purpose and objectives of the onsite simulation, emphasizing the process of identifying and examining hazards and evaluating site conditions during the walk-through.

Learning Outcomes: Discuss whether learning objectives were achieved, including effective hazard recognition, awareness of environmental factors, and accurate documentation of observations. Highlight strengths as well as opportunities for improvement.

Participant Reactions: Invite participants to share brief reflections on any physical, emotional, or cognitive responses experienced during the exercise, particularly related to time constraints, situational awareness, and safety responsibility.

Real-World Application: Facilitate a discussion on how onsite hazard identification and examination principles apply to real-world hazardous waste sites, with emphasis on early risk recognition, site monitoring, and maintaining overall safety.

Group Discussion: Divide participants into small groups to review specific hazards or scenarios encountered during the simulation. Each group should identify key takeaways and practical lessons learned to share with the larger group.

Conclusion

This simulation reinforces the importance of systematic onsite hazard identification and examination as a critical component of hazardous waste site safety. By applying OSHA-aligned procedures, practicing careful observation and documentation, and reflecting on both performance and decision-making during the debrief, participants strengthen their ability to recognize risks without engaging in remediation. This also provides a cohesive learning experience that prepares participants to approach real-world hazardous waste sites with increased awareness, accountability, and confidence in their assessment skills.

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Operating Instructions

The user interface of the simulation allows participants to visualize the perimeter of a hazardous waste site and interact with various tools. Participants will be required to:

- Monitor your air supply as you walk on a hazardous waste site trying to examine items closely.
- Follow on-screen prompts and instructions for picking up and rotating hazards for examination, as well as your air supply meter which will slowly tick down as the simulation progresses.
- Analyze and report hazards through examination mode where you can zoom in, rotate objects, and mark objects as examined.

Operation Controls

Movement:
W: Move Forward
A: Strafe Left
S: Strafe Right
D: Move Backwards

Move the **mouse** to look around the environment.

Tob: opens the main menu.

Open Map: M opens the environment map. Click on areas with the yellow circular indicators to move to that location.

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Menu Options

The **Hazard Tracker** is the first tool instructors can use to support the training process when students are struggling to identify all potential hazards within the site. When activated, it provides a visual indicator showing the number of hazards that have been found so far, allowing instructors to track progress and determine if further guidance is needed. To **open** the menu you click the **tab** key.

Mute toggles all simulation sound on/off.

The **Free Move** feature offers additional support for instructors if students are struggling to locate hazards. When activated, it removes movement-related barriers, allowing instructors to freely move within the waste site and point out any missed hazards.

The **Reveal Hazards** option highlights all hazards within the scene, providing another way for instructors to assist students in identifying potential dangers.

The **Hide Hazards** feature removes the highlights previously activated by the Reveal Hazards feature.

Instructions brings up the control scheme again, providing a quick reference in case you need to review the movement and interaction controls.

Exit Module exits the current module and returns to the module selection screen.

Exit Application closes the application and simulation entirely.

Begin Examining an Object

When an object is targeted and the "Press E to Examine" message appears in the middle of your screen, press **E** to enter examination mode.

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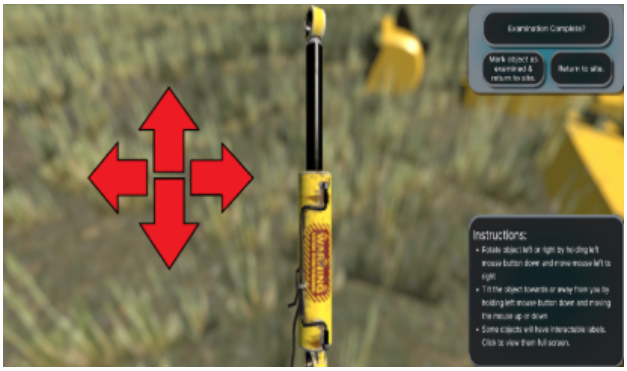
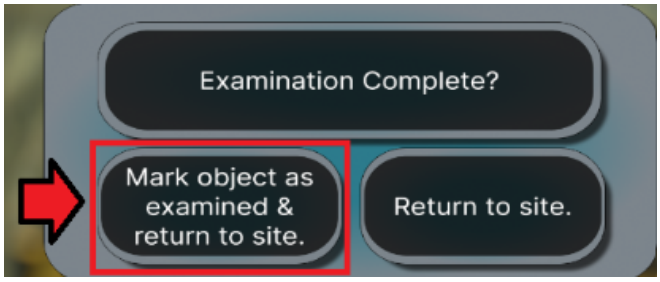
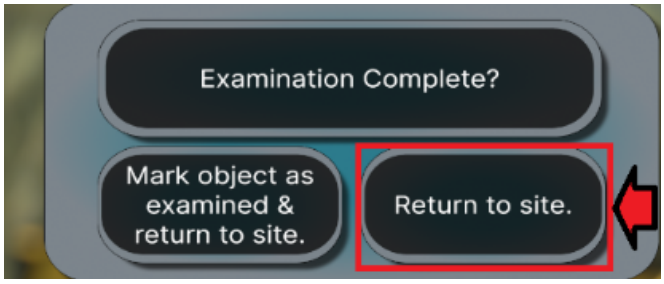
Examination Mode Controls

Rotate Object: Hold down the left-mouse button and move the mouse to the left or right to rotate the object. Hold down the left-mouse button and move the mouse up and down to rotate the object vertically.





To mark object as Examined: Click the button in the top-right of the screen labeled "Mark Object as Examined and Return To Site". This will also exit examination mode.
Note: You can re-examine objects at any time until the simulation is completed.



To exit examination mode: Click the button in the top-right of the screen labeled "Just Return To Site". Pressing E will also exit this mode.
Note: You can re-examine objects at any time until the simulation is completed.

Air Supply Meter: Your air supply meter will be displayed to the bottom right of the screen. This will slowly tick down as the simulation progresses. You will have twenty minutes of usable oxygen. An alarm will start playing when you only have three minutes of oxygen left.