Instructor Led Simulation Guide
Hazardous Waste Off Site

Introduction

This guide is designed to provide an immersive learning experience for participants to understand and apply reconnaissance procedures around the off-site perimeter of hazardous waste sites. Participants will focus on identifying potential risks, documenting findings, and assessing environmental factors around the perimeter of a site without direct engagement with hazardous materials. This is in accordance with OSHA requirements 29 CFR 1910.120 and emphasizes perimeter security, monitoring, and reporting protocols. The simulation will cover the key elements of site reconnaissance, proper documentation techniques, and the use of observation tools for perimeter assessments.

The objective of this guide is to help learners understand the principles of off-site reconnaissance, how to safely conduct perimeter surveillance, and the importance of monitoring for signs of contamination or environmental breaches. This guide will walk you through the key areas of instruction, pre-brief guidelines, operating procedures, and the debrief process.

Pre Brief

The pre-brief serves to prepare participants for the simulation by explaining the objectives, roles, and context of the reconnaissance. As the instructor, ensure the following key components are covered:

Objectives Overview: The primary objectives include understanding how to conduct a thorough perimeter reconnaissance to identify potential hazards and vulnerabilities in the site's boundary, including breaches, wind direction analysis, and monitoring of potential contamination pathways. Participants will also become familiar with data collection methods and observation tools used in perimeter reconnaissance.

Communication and Respect: Emphasize the importance of clear communication during the exercise. Set a respectful tone and encourage participants to share information about their observations during the simulation. Establish the focus for post simulation discussion to be on lessons learned rather than individual performance.

Participants' Roles: Ensure that each participant understands their task and their responsibility for documenting observations effectively.

Facilitator's Role: Guide participants through the process, providing feedback and asking reflective questions, such as, "What might happen if a perimeter breach goes unnoticed?" Facilitate group discussions and encourage critical thinking about potential site hazards.

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Pre Brief Contd.

Reconnaissance Overview: Briefly describe the steps for conducting an off-site perimeter reconnaissance, including how to assess environmental conditions (e.g., wind direction, vegetation changes), identify potential contamination signs (e.g., liquid seepage, odors), and document findings systematically.

Resource Overview: Provide an overview of any tools or PPE that may be required during the reconnaissance, depending on the simulated environment. Highlight the importance of maintaining a safe distance from the hazardous waste site while performing perimeter assessments.

Debrief

The debrief is crucial for helping participants reflect on their experience and consolidate their learning. As an instructor, lead a group debrief immediately after the exercise or the following day to allow participants time for reflection. Encourage self-reflection and invite participants to share their insights.

Summary: Begin with a summary of the simulation and its objectives, focusing on the effectiveness of the perimeter reconnaissance and the ability to identify hazards.

Learning Objectives: Discuss whether participants met the learning objectives, including the recognition of environmental risks and the proper documentation of observations. Highlight both successes and areas for improvement.

Emotional/Physical Reactions: Address any emotional or psychological reactions participants experienced during the simulation, especially regarding the responsibility of ensuring site safety from the perimeter.

Application to Real-World Settings: Guide a discussion on how the principles of perimeter reconnaissance can be applied to real-world hazardous waste site management. Focus on how site monitoring helps prevent contamination spread and supports overall site safety.

Timing and Group Discussion: Break the debrief into smaller groups if possible, allowing more intimate discussions. Each group can analyze specific scenarios or hazards encountered during the simulation and identify key takeaways.

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Conclusion

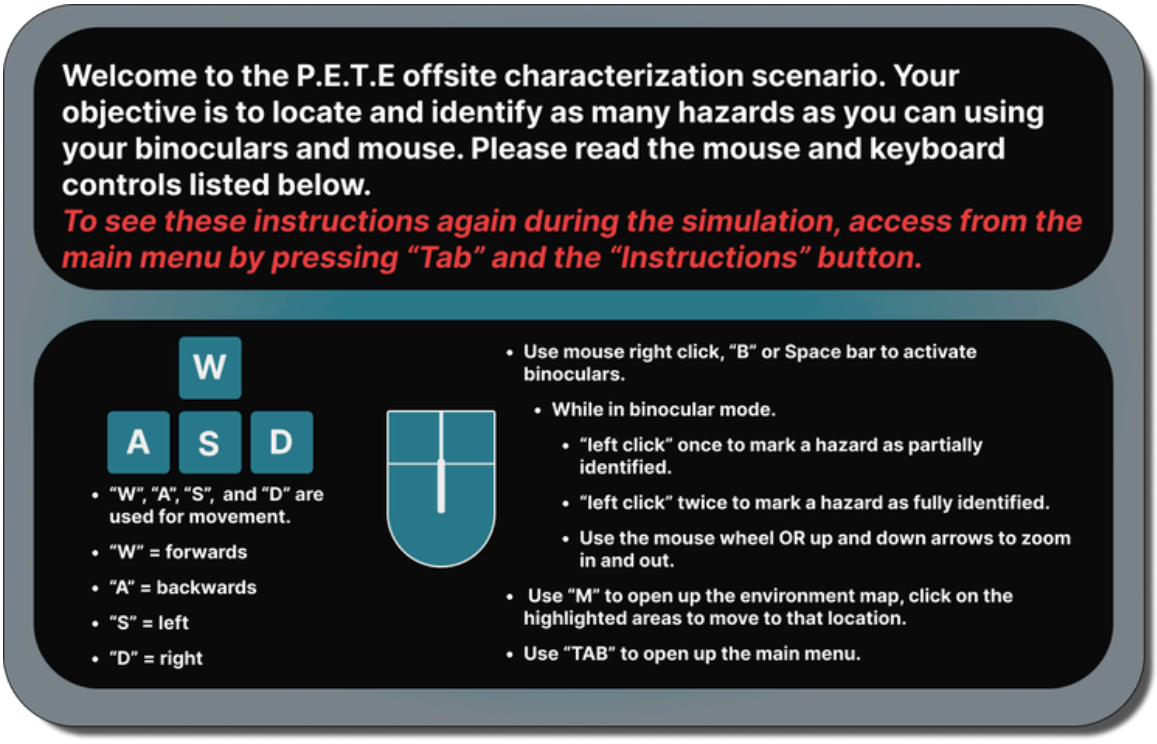
This instructor-led simulation is designed to enhance participants' understanding of the critical reconnaissance procedures necessary for monitoring the off-site perimeter of hazardous waste sites. By engaging in the process, participants will leave with practical knowledge of site surveillance, hazard identification, and the importance of environmental monitoring.

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 the perimeter using observation tools (binoculars) to spot potential hazards.
- Track environmental factors like wind direction (using compass) or weather changes that could influence contamination spread.
- Follow on-screen prompts and instructions for moving along the perimeter and logging hazards.
- Analyze and report hazards through in-simulation tools, which record partial or full identification.

UI Control Scheme Layout



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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.

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.

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

Targeting Hazards

After activating binocular mode, students can target an object that is a potential hazard. The object will highlight, and a yellow arrow will appear above it. This visual cue helps instructors identify interactable hazards within the scene, ensuring they can effectively guide students in recognizing and assessing potential risks.

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Identifying Hazards

When targeting an interactable object that is highlighted, the instructor can left-click to mark it as a potential hazard.

- The first click places an unfilled hazard icon, indicating that the hazard is only partially identified at this time.
- Clicking a second time will fill in the hazard icon, confirming that the hazard is identifiable.
- A third click will remove the hazard icon entirely, allowing instructors to reset the marking if needed.

A **Partial Hazard** is one that is not fully identifiable due to lack of access or inability to read markings or enough information to make a solid determination. These are marked by the greyed out icons.

A **Full Hazard** is one that is fully identifiable enough to make a solid determination. These are marked by the filled in yellow icons.

Total Hazards

In the off site simulation there are **52 hazards** in total

- 32 hazards are fully labeled
- 20 are partially labeled