
Unit 4: Identifying Hazards and Risks

STUDENT GUIDE

Objectives

By the end of this unit, students will be able to:

- Understand the distinction between a hazard and a safety risk and identify situations and actions that are of high importance to the Safety Officer
- Define “risk” and “hazard”
- Explain the difference between a risk and a hazard

Methodology

This unit uses lecture, exercises, and discussion.

Content from this unit will be tested through the Final Exam, as well as through the facilitation of Exercises 3 and 4. The purpose of Exercise 3 is to provide Students with an opportunity to distinguish between hazards and risks. This exercise will last approximately 30 minutes. Students will gather in small groups to discuss the items on the worksheet and determine whether each is a hazard or a risk. Each group will present their findings to the rest of the class.

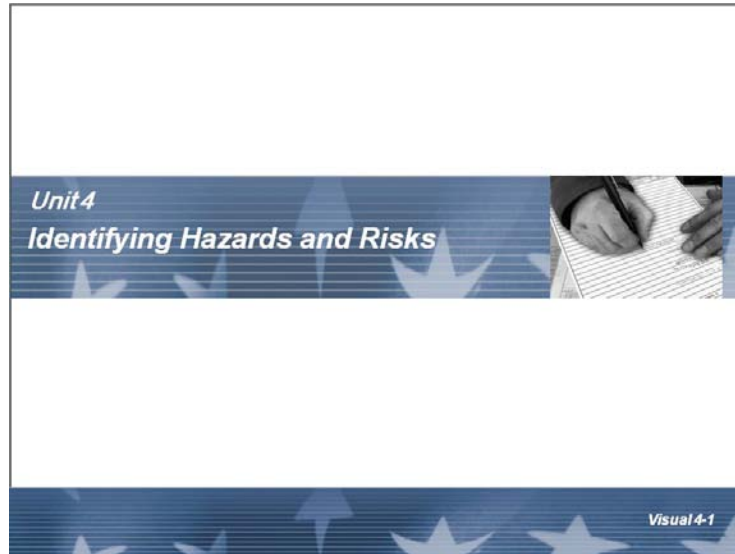
The purpose of Exercise 4 is to provide Students with an opportunity to examine the Incident Action Plan for the C&C Train Derailment Scenario that is used in many of the exercises in the remainder of this course and to identify hazards and risks. This exercise will last approximately 45 minutes. Students will first individually become familiar with the C&C Train Derailment IAP, then gather in small groups to identify hazards and risks. The entire class will then select 10 hazards and risks for use in later exercises.

Through this unit, students will gain a general understanding of how to identify hazards and risks. Students will learn the difference between hazards and risks and how to identify each. Through review of examples of potential risks and hazards, students will begin to build knowledge that will help them to identify hazards and risks at an incident site and while pre-planning for an incident.

Time Plan

A suggested time plan for this unit is shown below. More or less time may be required, based on the experience level of the group.

Topic	Time
Lesson	1 hour
Exercise 3	30 minutes
Exercise 4	45 minutes
Total Time	2 hours 15 minutes



Key Points

Scope Statement

Through this unit, students will gain a general understanding of how to identify hazards and risks. Students will learn the difference between hazards and risks and how to identify each. Through review of examples of potential risks and hazards, students will begin to build knowledge that will help them to identify hazards and risks at an incident site and while pre-planning for an incident.

Unit Terminal Objective

Understand the distinction between a hazard and a safety risk, and identify situations and actions that are of high importance to the Safety Officer.

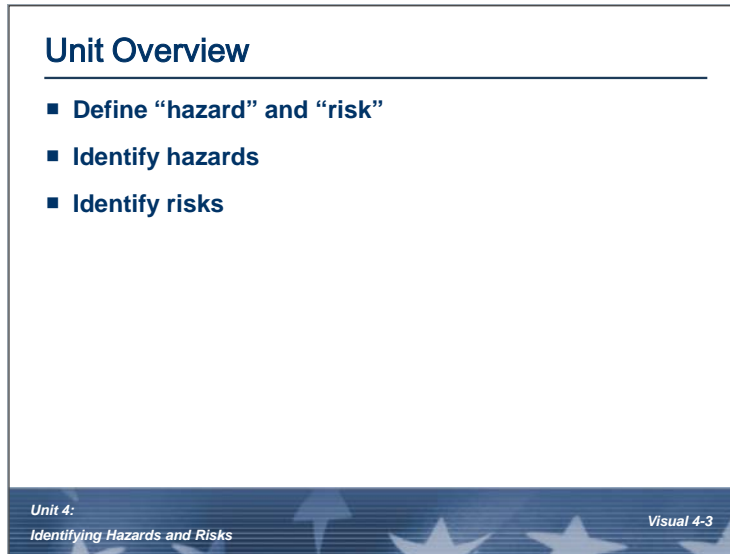
**Key Points**

Unit Terminal Objective

Understand the distinction between a hazard and a safety risk and identify situations and actions that are of high importance to the Safety Officer.

Unit Enabling Objective

- Define “risk” and “hazard”
- Explain the difference between a risk and a hazard

A slide titled "Unit Overview" with a blue header and footer. The main content area is white with a blue border. It contains a bulleted list of three items: "Define 'hazard' and 'risk'", "Identify hazards", and "Identify risks". The footer has a blue background with white stars and text: "Unit 4: Identifying Hazards and Risks" on the left and "Visual 4-3" on the right.

Unit Overview

- Define “hazard” and “risk”
- Identify hazards
- Identify risks

Unit 4:
Identifying Hazards and Risks

Visual 4-3

Key Points

This unit explains the types of hazards and risks that the Safety Officer might encounter. Rather than list all potential hazards and risks, this unit offers you a chance to build your knowledge of hazards and risks that you might encounter and to recognize the potential issues that you may need to learn about.

Hazards

- Hazards – Things in the environment that can cause harm to people or equipment



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Visual 4-4

Key Points

Hazards are things in the environment that can cause harm to people or equipment.

Risks

- **Risks – The chances that people take in relationship to hazards**



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Identifying Hazards and Risks

Visual 4-5

Key Points

Risks are the chances that people take in relationship to hazards.

Topic Hazard vs. Risk

Hazard vs. Risk

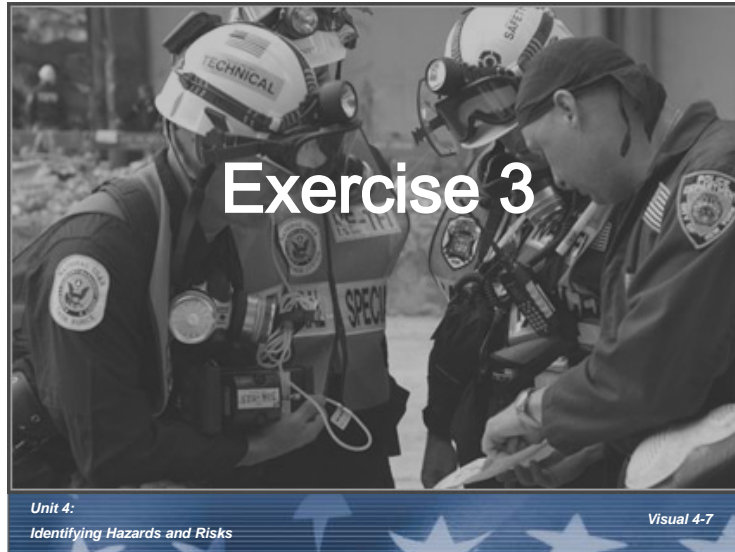
- A hazard does not necessarily put you at risk
- Everything we do exposes us to hazards
- HOW we do things is what determines the risk

Unit 4:
Identifying Hazards and Risks

Visual 4-6

Key Points

- A hazard does not necessarily put you at risk
- Everything we do exposes us to hazards
- HOW we do things is what determines the risk



Key Points

Follow directions from the instructor on how to complete this exercise.

Topic Identify Hazards and Risks

Identify Hazards and Risks

- **The Safety Officer is expected to be highly experienced, but still might not know all the hazards that are present**

Unit 4: Identifying Hazards and Risks Visual 4-8

Key Points

The Safety Officer is NOT expected to know all of the hazards that are present. Experience helps the Safety Officer learn more of them, but Assistant Safety Officers and Technical Specialists can augment that knowledge.

Topic Identify High Potential Risks

Identify High Potential Risks

- Identify risks with the greatest potential for serious accident or injury
- What are the most dangerous actions people take while responding to an incident?

Unit 4:
Identifying Hazards and Risks

Visual 4-9

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

■ Transportation



Unit 4:
Identifying Hazards and Risks

Visual 4-10

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

- Transportation – boats



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Identifying Hazards and Risks

Visual 4-11

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

- Transportation – troop carrier



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Identifying Hazards and Risks

Visual 4-12

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

- Transportation – helicopter operations



Unit 4:
Identifying Hazards and Risks

Visual 4-13

Key Points

Identify High Potential Risks (cont.)

- Tactical assignment



Unit 4:
Identifying Hazards and Risks

Visual 4-14

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

- Equipment – power saws



Unit 4:
Identifying Hazards and Risks

Visual 4-15

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

- Boom operations



Unit 4:
Identifying Hazards and Risks

Visual 4-16

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

- Specialized equipment



Unit 4:
Identifying Hazards and Risks

Visual 4-17

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

- Trenching and shoring operations



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Identifying Hazards and Risks

Visual 4-18

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

- Building collapse



Unit 4:
Identifying Hazards and Risks

Visual 4-19

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

- Felling operations



Unit 4:
Identifying Hazards and Risks

Visual 4-20

Key Points

Identify High Potential Risks (cont.)

- Night operations



Unit 4:
Identifying Hazards and Risks

Visual 4-21

Key Points

Identify High Potential Risks (cont.)

■ Overhaul



Unit 4:
Identifying Hazards and Risks

Visual 4-22

Key Points

Topic Identify High Potential Risks (cont.)

Identify High Potential Risks (cont.)

- Air Operations



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Identifying Hazards and Risks

Visual 4-23

Key Points

Topic Identify High Potential Hazards

Identify High Potential Hazards

- Identify hazards with the greatest potential for serious accident or injury
- What are the most dangerous things people can encounter while responding to an incident?

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Visual 4-24

Key Points

Identify High Potential Hazards (cont.)

■ Snags



Unit 4:
Identifying Hazards and Risks

Visual 4-25

Key Points

Identify High Potential Hazards (cont.)

■ Biohazards



Unit 4:
Identifying Hazards and Risks

Visual 4-26

Key Points

Identify High Potential Hazards (cont.)

■ **Biohazards (cont.)**



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Identifying Hazards and Risks

Visual 4-27

Key Points

Identify High Potential Hazards (cont.)

■ **Biological/Toxin**



Unit 4:
Identifying Hazards and Risks

Visual 4-28

Key Points

Identify High Potential Hazards (cont.)

■ Biological (cont.)



Unit 4:
Identifying Hazards and Risks

Visual 4-29

Key Points

Identify High Potential Hazards (cont.)

■ Topography



Unit 4:
Identifying Hazards and Risks

Visual 4-30

Key Points

Identify High Potential Hazards (cont.)

- **Chemical/Fire Behavior**

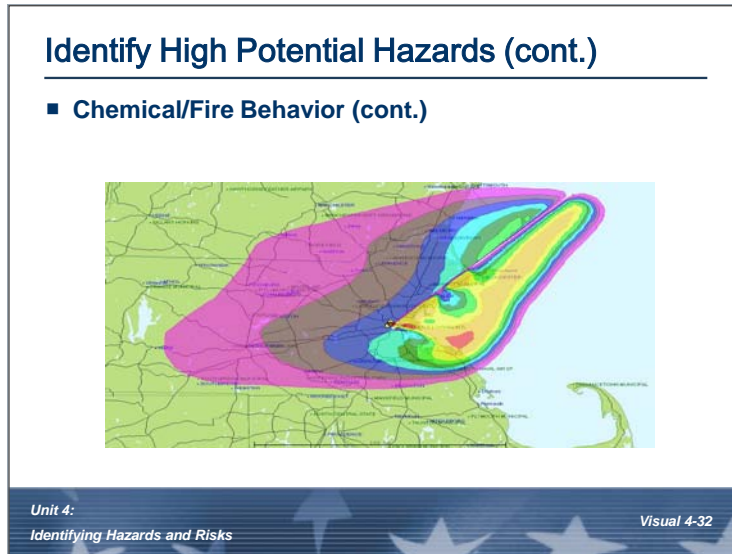


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Visual 4-31

Key Points

Topic Identify High Potential Hazards (cont.)



Key Points

This is a model from EPA's ASPECT aerial modeling platform, which examines chemical releases over large areas and helps you to predict the hazard area. It tells you how big your evacuation needs to be.

Identify High Potential Hazards (cont.)

- Weather



Key Points

Topic

Identify High Potential Hazards (cont.)

Identify High Potential Hazards (cont.)

- Weather (cont.)



Unit 4:
Identifying Hazards and Risks

Visual 4-34

Key Points

Identify High Potential Hazards (cont.)

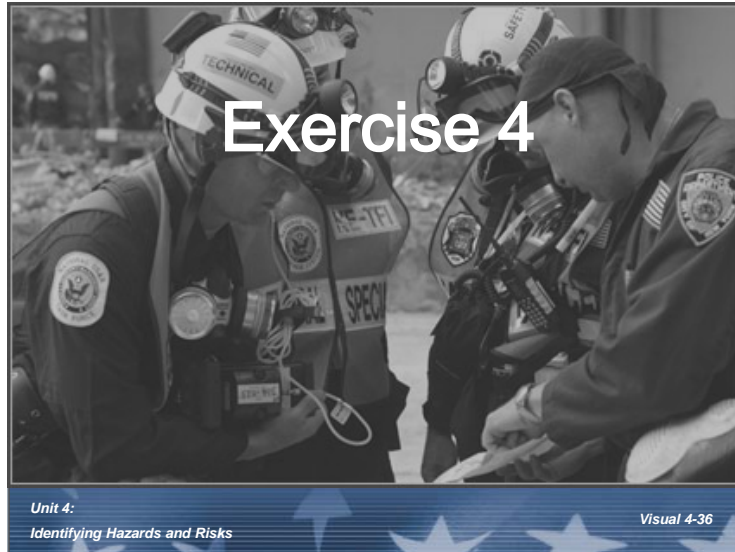
■ Structural collapse



Unit 4:
Identifying Hazards and Risks

Visual 4-35

Key Points

**Key Points**

Follow directions from the instructor on how to complete this exercise.

Objectives Review

What is the difference between a hazard and a risk?

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Identifying Hazards and Risks

Visual 4-37

Key Points
