



Lesson Plan

Critical Controls & Safe Design Thinking

Session Overview

This session builds capability in applying critical control management and safe design principles to prevent serious harm and embed proactive risk management.

It focuses on helping safety professionals understand how design, verification, and consultation come together to create sustainable, high-performing safety systems.

What we'll cover:

- Why critical controls are the key to preventing serious incidents
- How to identify and prioritise material unwanted events and critical risks
- The difference between general controls and critical controls – and why verification matters
- Applying safe design principles to eliminate or reduce risks early in a project
- How to verify that controls are working as intended – and what to do when they're not

INSHPO Alignment: Domains A & B – Hazards & Risks / Hazard & Risk Controls

Capability Level: Level 2 → Level 3 (Routine Application → Comprehensive Application)

INSHPO Domains A & B – Hazards, Risks & Controls

Capabilities developed through this session:

- Identifying and prioritising material unwanted events (critical risks)
- Designing and verifying critical controls for effectiveness
- Integrating safe design into planning, procurement, and lifecycle processes
- Embedding design thinking into consultation and risk review
- Using learning from incidents and verification data for improvement

Learning Outcomes

INSHPO Knowledge Area	Learning Outcome	Capability Level
Hazard Identification & Risk Assessment	Explain the relationship between hazards, risks, and critical controls.	Application
Critical Control Management	Apply methods to define, test, and verify control effectiveness.	Application → Integration
Safe Design Principles	Incorporate design thinking to eliminate or reduce risks at the source.	Integration
System Integration	Embed verification and learning loops into safety systems.	Integration
Consultation & Collaboration	Engage project and engineering teams in safe design decision-making.	Application