Training Course
on the IAEA Safety Standards Overview

Leadership and Management for Safety – GSR Part 2

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Learning Objectives

By the end of this session, participants will be able to:

1. **Explain GSR Part 2**
   Describe the content of Leadership and Management for Safety.

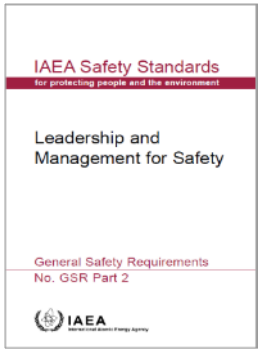
2. **Connect principles**
   Link GSR Part 2 to the Fundamental Safety Principles.

3. **Assess applicability**
   Recognize where GSR Part 2 applies across organizations and activities.

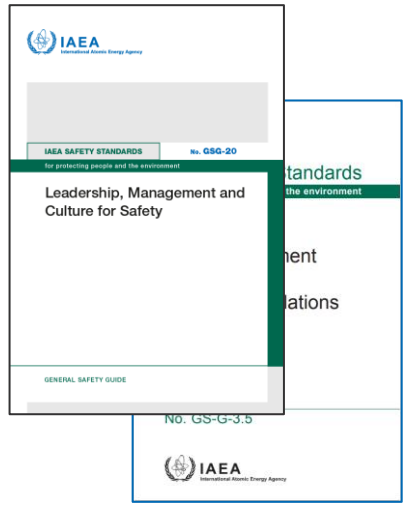
4. **Use guidance**
   Identify IAEA activities and guidance that support Member States.

Focus: clear expectations for leadership, management systems and safety culture in nuclear and radiation safety.

Core reference material



GSR Part 2 Leadership and Management for Safety



Supporting safety guides and practical guidance

GSR Part 2: link to Fundamental Safety Principles

GSR Part 2 operationalizes the safety principles most directly connected to leadership, management and accident prevention.

Principle 1

Responsibility for safety

Prime responsibility rests with the person or organization responsible for facilities and activities that give rise to radiation risks.

Principle 3

Leadership and management for safety

Effective leadership and management for safety must be established and sustained in organizations, facilities and activities giving rise to radiation risks.

Principle 8

Prevention of accidents

All practical efforts must be made to prevent and mitigate nuclear or radiation accidents.

Other

Other principles also inform the management system.

GSR Part 2 focus area

Essential message: Principle 3 is the bridge between safety responsibility, accident prevention and day-to-day organizational behaviour.

GSR Part 2: scope and status

What it does

Supersedes GS-R-3

Issued in 2016 on the management system for facilities and activities.

Applies broadly

Covers all types of facilities and activities that give rise to radiation risks.

Fits all organizations

Applies to organizations of all sizes.

Learns from events

Reflects lessons from operating experience, including the Fukushima-Daiichi accident.

Current status

GSR Part 2 2016

Revision in progress DS565 under development

Core idea

A single set of high-level requirements links leadership, management systems and safety culture across a wide range of nuclear and radiation contexts.

Keep current with the DS565 revision process while applying the 2016 requirements.

GSR Part 2: applicability and graded approach

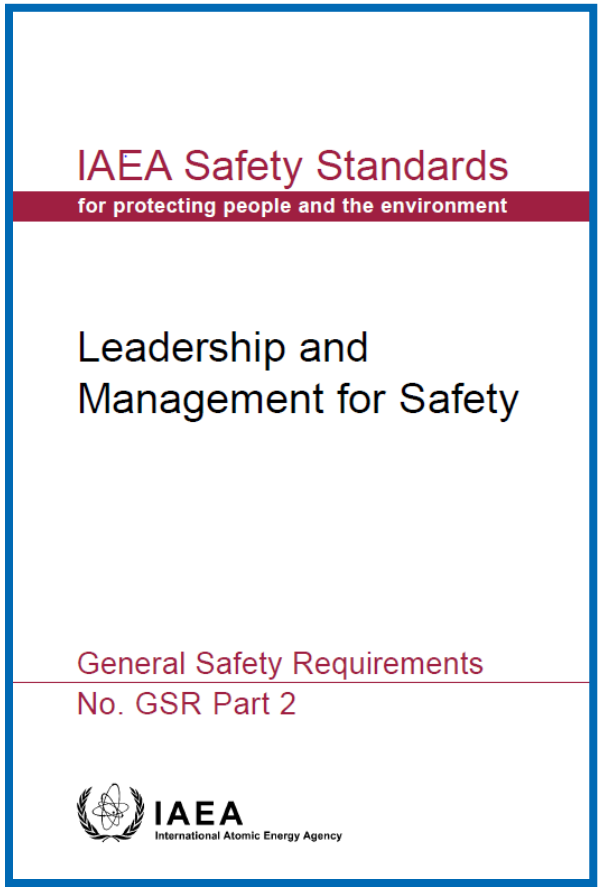
Requirements are relevant across activities and facilities that give rise to radiation risks; application is graded to the hazard and context.

Radiation sources and uses

Medical use of high and low hazard sources
Industrial use of high and low hazard sources
Users of radioactive sources
Education and research use of radioactive sources
Transport of radioactive material

Facilities and organizations

Radioactive waste management facilities
Nuclear power plants and research reactors
Mining, enrichment and fuel facilities
Regulatory bodies



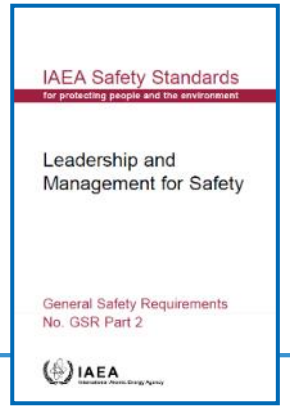
Apply requirements in a way proportionate to safety significance.

Essential message: broad applicability does not mean one-size-fits-all implementation.

GSR Part 2: balance of three elements

Leadership, management systems and culture for safety must be designed and assessed as a mutually reinforcing system.

Culture for Safety



Management for Safety

A formal, authorized function for ensuring the organization operates efficiently and work is completed in accordance with requirements, plans and resources.

The management system captures expectations; leadership turns them into behaviours.

How does leadership support safety culture?

Leadership for Safety

The use of individual capabilities and competences to give direction, influence commitment and apply fundamental safety principles through shared goals, values and behaviour.

Overview of GSR Part 2 Requirements

1	Responsibility for safety
2	Leadership for safety
3 - 11	Management for safety
12	Culture for safety
13 - 14	Measurement, assessment and improvement

Responsibility for safety

- Achieving the fundamental safety objective – **protecting the people and the environment from harmful effects of ionizing radiation**
- Registrant or licensee holds prime responsibility
- Senior management sets priorities, resources and decisions

This section has 1 requirement

Leadership for safety

- **Managers shall demonstrate leadership for safety and commitment for safety**
- Safety policy, goals and expectations are communicated
- Accountability, questioning attitude and open reporting are encouraged

This section has 1 requirement

Leadership for safety
Key Messages

✓ **Requirement 2**
Managers demonstrate leadership for safety throughout the organization.

✓ **Priority to safety**
Protection and safety issues receive attention warranted by their significance.

✓ **People, technology, organization**
Safety encompasses interactions between people, technology and the organization.

✓ **Strong safety culture**
Behavioural expectations are established and a strong safety culture is fostered.

✓ **Personal accountability**
Accountability for safety is accepted by all individuals and reflected in decisions at all levels.

✓ **Reporting and improvement**
Reporting, learning, questioning attitudes and continuous improvement are promoted.

Question

(d) Establishing the acceptance of **personal accountability** in relation to safety on the part of all individuals in the organization and establishing that decisions taken at all levels take account of the priorities and accountabilities for safety.

What is,
in your opinion,
personal accountability?

Question

(c) Ensuring that their actions serve to encourage the **reporting of safety related problems**, to develop questioning and learning attitudes, and to correct acts or conditions that are adverse to safety.

What is your experience with reporting of safety related problems?

Management for safety

- Management system integrates safety into all parts of the organization
- Responsibilities, authorities and interfaces are defined
- Graded approach, resources and supply chain are controlled

This section has 9 requirements

Definitions

“Management System” is a set of interrelated or interacting elements (system) for establishing policies and objectives and enabling the objectives to be achieved in an efficient and effective manner.

- The component parts of the management system include the organizational structure, resources and organizational processes.
- Personnel, equipment and organizational culture as well as the documented policies and processes form parts of the management system.

Management System

requirements

strong / efficient management system
administrator and watchdog

organizational
structure
responsibilities
authorities

objectives
KPIs
tasks

documentation
IT support

resources

processes

feedback,
continuous improvement

Question

Has your organization implemented management system?

Management for safety
Key Messages

✓ **Requirement 3**
Responsibility of senior management for the management system.

✓ **Key obligation**
Establish, apply, sustain and continuously improve the management system to ensure safety.

✓ **Requirement 4**
Goals, strategies, plans and objectives.

✓ **Safety policy alignment**
Set goals, strategies, plans and objectives consistent with the organization's safety policy.

✓ **Requirement 5**
Interaction with interested parties.

✓ **Stakeholder interaction**
Ensure appropriate interaction with interested parties takes place.

✓ **Requirement 6**
Integration of the management system.

✓ **Integrated system**
Integrate safety, health, environmental, security, quality, human/organizational, societal and economic elements so safety is not compromised.

Question

Senior management shall **identify interested parties for their organization** and shall define an appropriate strategy for interaction with them.

Who are interested parties for your organization?

Management for safety
Key Messages

✓ **Requirement 7**
Application of the graded approach to the management system.

✓ **Graded approach**
Develop and apply the management system using a graded approach.

✓ **Requirement 8**
Documentation of the management system.

✓ **Controlled documentation**
Documentation must be controlled, usable, readable, clearly identified and available at the point of use.

✓ **Requirement 9**
Provision of resources.

✓ **Resources and competences**
Determine the competences and resources needed to carry out activities safely and provide them.

✓ **Requirement 10**
Management of processes and activities.

✓ **Process control**
Develop and effectively manage processes to achieve organizational goals without compromising safety.

✓ **Requirement 11**
Management of the supply chain.

Question

Senior management shall determine **which competences and resources** the organization **has to retain or has to develop internally,** and which competences and resources **may be obtained externally,** for ensuring safety.

Can you provide some examples from your organization?

Culture for safety

- Shared values support safe decisions and behaviours
- Trust, collaboration and open communication are encouraged
- Reporting, learning and questioning are reinforced

This section has 1 requirement

Safety culture in nuclear safety

CORE IDEA

Safety has overriding priority — especially under pressure.

Safety culture is the shared values, attitudes and behaviours that make people notice weak signals, raise concerns early and choose conservative actions before margins are challenged.

Key message: culture is not a slogan; it is visible in everyday decisions, leadership responses and what the organization reinforces.

SYSTEMIC VIEW

Nuclear safety emerges from interaction across three domains:

People competence, questioning attitude, personal accountability

Technology plant condition, barriers, procedures and controls

Organization leadership, priorities, resources, learning and trust

Strong culture aligns all three toward conservative, safety-oriented decisions.

Why safety culture is powerful

Culture turns priorities into “the way work is really done” — especially when no rule can cover every situation.

Invisible norms drive visible behaviour

1. **Beliefs and assumptions**

   What people believe is risky, acceptable or important.

2. **Social norms**

   What peers and leaders expect, praise or challenge.

3. **Reinforcements**

   What gets time, resources, recognition and follow-up.

Nuclear safety implication: if small deviations are tolerated, they become normal; if concerns are welcomed, reporting and learning become normal.

Desired norm: people speak up early, leaders respond constructively, and the organization learns before events occur.

Safety culture iceberg: what we see and what drives it

Visible behaviours are only the surface. The deeper drivers determine whether nuclear safety is protected under pressure.

VISIBLE

Observable artefacts: briefings, procedures, work practices, decisions, event reports

LESS VISIBLE

Espoused values: safety first, conservative decision making, questioning attitude

Organizational conditions: leadership behaviours, resources, trust, just reporting, learning system

Basic assumptions: production never overrides safety; weak signals matter; everyone owns nuclear safety

Clear message: improving safety culture means working below the surface — leadership, trust, learning and assumptions — not only rewriting procedures.

Culture for safety
Key Messages

✓ Requirement 12

Individuals in the organization, from senior managers downwards, shall foster a strong safety culture. The management system and leadership for safety shall be such as to foster and sustain a strong safety culture.

✓ Shared ownership

Everyone, from senior managers downwards, contributes to sustaining a strong safety culture.

✓ Common understanding

Build awareness of radiation risks and hazards, and their significance for safety.

✓ Commitment and accountability

Expect collective commitment to safety and personal accountability for attitudes and conduct.

✓ Trust, communication and reporting

Promote trust, collaboration, consultation, communication and timely reporting of technical, human and organizational issues.

✓ Learning and integration

Encourage questioning, learning, safety-oriented decisions and exchange between safety culture and security culture.

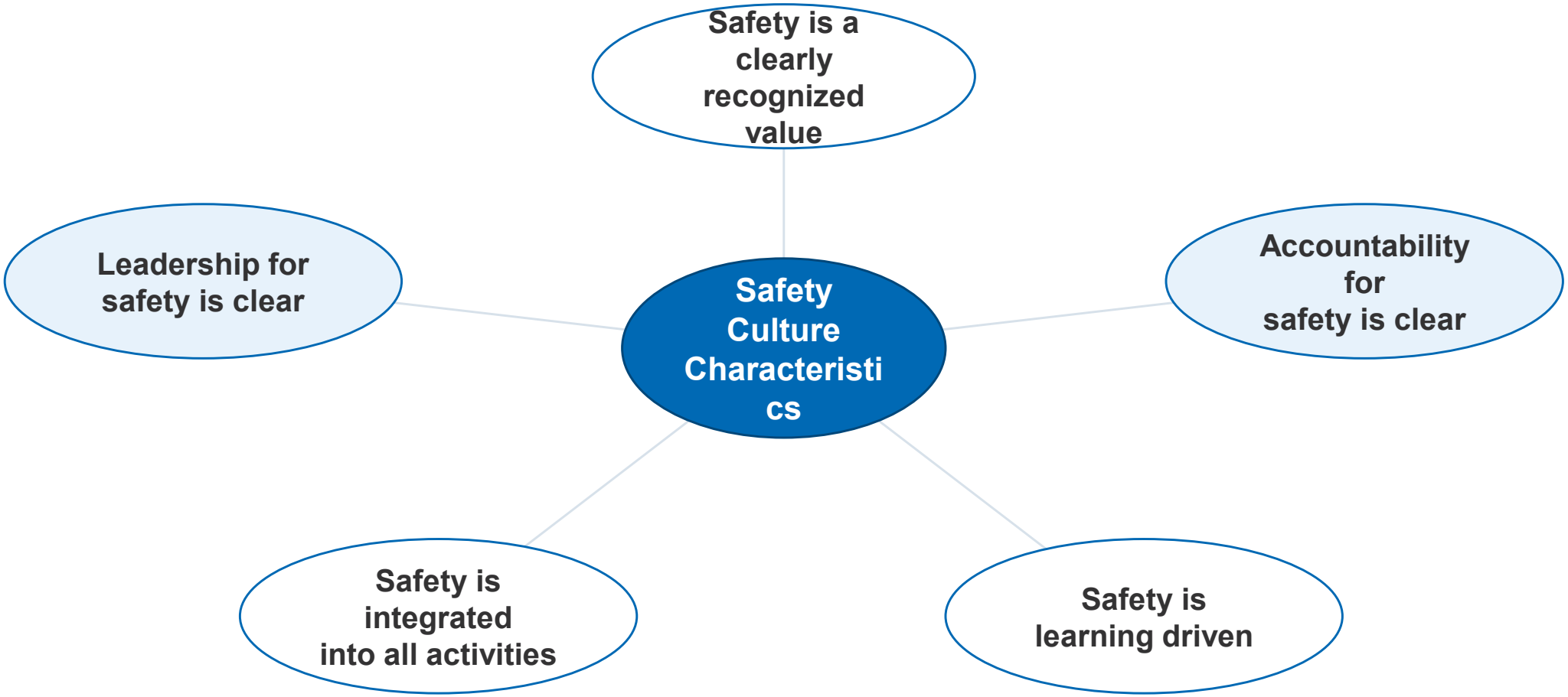
Question

Senior managers and all other managers shall advocate and support the following:

(c) An organizational culture that supports and encourages **trust, collaboration, consultation and communication**

What can be done practically to encourage trust, collaboration,…?

Current IAEA Safety Culture Model



Essential message: strong nuclear safety culture is created when these five characteristics reinforce everyday decisions and behaviours.

IAEA Safety Culture Characteristics and Attributes (GS-G-3.1, GS-G-3.5)

Five characteristics translate into observable attributes that can be assessed and improved.

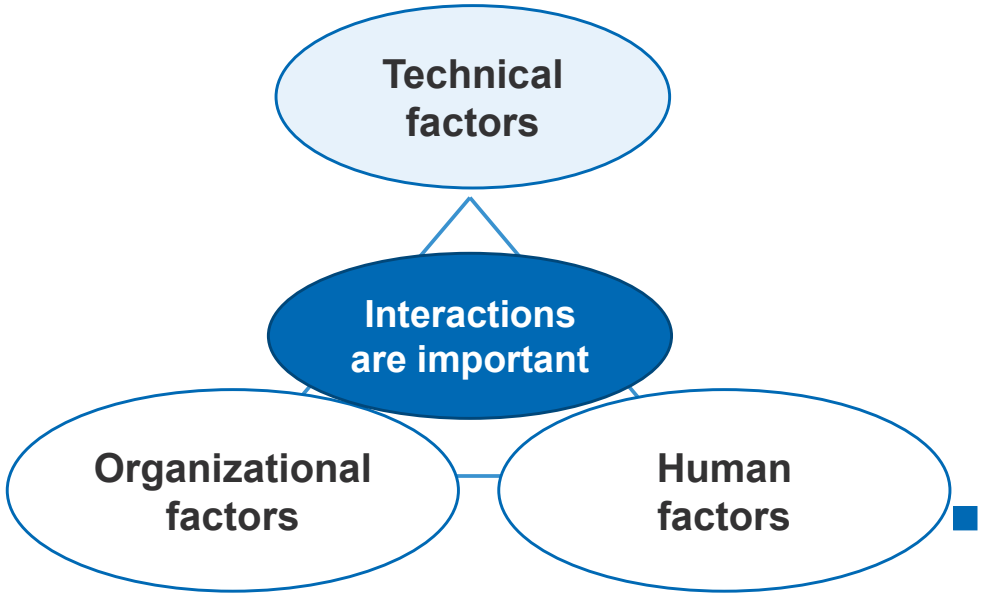
Safety is a clearly recognized value	Accountability for safety is clear	Safety is learning driven	Safety is integrated into all activities	Leadership for safety is clear
•High priority in documents, communications and decisions •Resources and business plans reflect safety •Safety and production go hand-in-hand •Proactive, long-term safety-conscious behaviour is supported	•Licensee accountability is retained with the regulator interface •Roles, responsibilities and authority are clear •Compliance with regulations and procedures is expected •Ownership is evident at all organizational levels	•Questioning attitude at all organizational levels •Open reporting of deviations and errors •Assessments and operating experience are used •Indicators are tracked and acted upon; staff are developed	•Trust, quality and safety are considered together •Documentation, procedures and processes are reliable •Work conditions, motivation and satisfaction are considered •Cross-functional teamwork and housekeeping are strong	•Senior management is visibly committed to safety •Leadership skills and staffing are developed •Staff are involved in improving safety •Change considers safety implications; openness builds trust

The Systemic Approach to Safety

Safety performance emerges from the interaction of organizational, technical and human factors.

Organizational factors

- Vision, objectives and strategy
- Integrated management system and continuous improvement
- Work organization, priorities and knowledge management
- Communication, vendors and suppliers
- Work environment and culture



Technical factors

- Existing technology and science
- Design, PSA/DSA and I&C
- Technical specifications
- Material quality and equipment reliability

Human factors

- Capabilities, skills and constraints
- Perceived work environment
- Motivation, understanding and emotions
- Social environment

Key implication: assessment and improvement should look across the whole socio-technical system, not at isolated factors.

Measurement, assessment and improvement

- Management system, leadership and culture are assessed
- Results are communicated and acted on
- Corrective actions drive continual improvement

This section has 2 requirements

Measurement, assessment and improvement

Key Messages

✓ Requirement 13

The management system is measured, assessed and improved to confirm its effectiveness.

✓ Safety performance focus

Assessment results show whether arrangements enhance nuclear safety performance.

✓ Prevent safety problems

Improvement actions minimize the occurrence and recurrence of safety-related problems.

✓ Requirement 14

Leadership for safety and safety culture are assessed regularly.

✓ Senior management ownership

Senior management commissions assessments within its own organization.

✓ Learning and improvement

Findings are used to strengthen leadership behaviours, safety culture and continuous improvement.

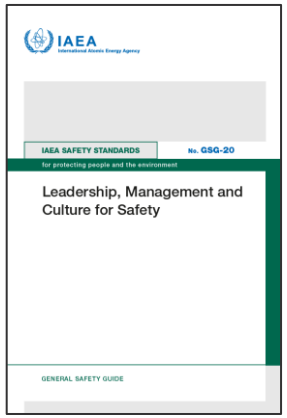
Question

The results of assessments of leadership for safety and of safety culture **shall be communicated** at all levels in the organization.

What is your experience – are results communicated in your organization in an appropriate way?

Safety Guides Supporting GSR Part 2

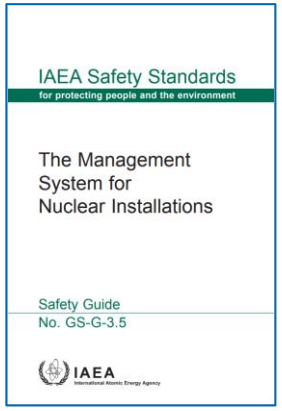
Two companion guides help translate GSR Part 2 into practical leadership, culture and management-system actions.



GSG-20

“Leadership, Management and Culture for Safety”

Published in 2026 — primary guidance for leadership, management and culture for safety.



GS-G-3.5

“The Management System for Nuclear Installations”

Detailed management-system guidance for nuclear installations.

GSR Part 2 Summary

Leadership, management systems and safety culture work together to protect people and the environment from radiation risks.

Leadership	Management system	Culture for safety
Visible commitment Clear priorities Accountability	Integrated requirements Graded approach Resources & interfaces	Trust & reporting Questioning attitude Learning

Nuclear safety depends on technical barriers and organizational behaviours.

14 requirements — **Daily decisions** — **Robust nuclear safety**

Core message: align responsibility, leadership, the management system and culture in everyday work.

Overriding priority: protect people, the environment and facilities from radiation risks

Key takeaways and lasting impressions

1. **Safety is the overriding priority**
   Decisions under pressure must still protect nuclear safety.

2. **Leadership makes expectations real**
   Visible choices shape behaviours and commitment.

3. **Management system is the backbone**
   Responsibilities, interfaces and resources are integrated and graded.

4. **Culture is how work is truly done**
   Trust, reporting and questioning attitudes protect safety.

5. **Improvement must be continuous**
   Assess leadership, management and culture — then act on findings.

Nuclear-specific lasting impression

Defence in depth is strengthened by people who feel accountable, speak up early and learn before small deviations become events.

Leave with one question: “What will I change tomorrow to make nuclear safety more robust?”

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