

NUCLEAR INSTITUTE - NUCLEAR DELTA REQUIREMENTS

Safety Culture and Personal Behavioural Safety

The Nuclear Delta requires an accredited nuclear professional to demonstrate an understanding of the term '**Safety Culture**' at a level appropriate to their grade. As a Member of the Nuclear Institute you are able to **demonstrate that you;**

- discharge your role responsibilities for safety, within the limits of your authority
- ensure you have full understanding of planned actions and their implications for safety.
- take appropriate action when faced with unexpected or uncertain conditions, including not proceeding with planned work activity until uncertainties are resolved.
- apply operating procedures and safe systems of work in order to meet organisation and legislative requirements.
- accept accountability for maintaining safety standards within your area of responsibility, contributing to identifying and resolving any shortfall in meeting standards.
- use organisation and/or site safety reporting systems effectively to identify unsafe conditions or behaviours or those with the potential to affect safety.

Additionally, Members of the Nuclear Institute who are leaders are expected to promote behaviours which support Safety and also create the environment that encourages good safety behaviours. In particular, these members should demonstrate that they;

- practice visible leadership by observing work, coaching, mentoring, and reinforcing standards.
- considers the employee perspective in understanding and analysing issues.
- provide appropriate oversight during safety-significant work.
- are appropriately involved in high-quality training that consistently reinforces expected worker behaviours.
- provide clear and consistent messages to all staff that recognises the importance of safety.

The Nuclear Delta requires an accredited nuclear professional to demonstrate a commitment to '**personal behavioural safety**'. As a Member of the Nuclear Institute you are able to **demonstrate that you;**

- challenge unsafe acts and behaviour and reinforce safe practice appropriately and effectively.
- apply nuclear safety principles to check that your decisions and work activities support safe nuclear operations.
- apply human performance and error-reduction tools within your role.
- work against complacency, maintaining and encouraging a questioning attitude.
- contribute to continuous improvement, maintaining an 'it can happen here' attitude.
- use organisation and/or site safety reporting systems effectively to learn from experience.
- accurately and factually represent the pros and cons of nuclear technology, when called upon to do so.

As a Member of the Nuclear Institute you **know and understand**;

- what is meant by Safety Culture¹
- your role, responsibilities, boundaries of your authority and reporting lines in respect of safety.
- the roles and responsibilities for safety of others within your organisation and/or site including, where applicable, the roles and responsibilities of Site Licensees/Authorisees and Contractors.
- the principles of nuclear safety, how these apply to your work and their importance as a foundation for sound decisions and actions.
- the contribution you, your activities and/or the products of your work make to nuclear safety.
- how to apply human performance and error-reduction tools within your role
- the safety track record of the nuclear industry, including awareness of key incidents, identified causes, contributory factors and resulting lessons learned.
- the importance of employee vigilance and reporting to maintaining an effective safety culture.
- the range of public opinion regarding nuclear sector operations.
- how to present a high level of personal professional responsibility for nuclear safety.

Nuclear Safety

The Nuclear Delta requires an accredited nuclear professional to demonstrate an understanding of '**nuclear safety**' at a level appropriate to their grade and role. As a Member of the Nuclear Institute you are able to **demonstrate that you**;

- apply understanding of nuclear safety to your work practices at a level applicable to your role and working environment.
- identify and understand the potential consequences arising from planned activities.
- take appropriate action to prevent or minimise the risk of a safety incident, unsafe action or other unintended consequence of your work (or work product).
- recognise what is safety critical.
- understand and comply with nuclear and environmental regulatory conditions and authorisations to safeguard people and the environment.
- comply with procedures and processes to minimise risk of exposure to radiation, as applicable to your role.
- conduct work activity to minimise potential for contamination, as applicable to your role.

¹ IAEA Safety Series No 75 INSAG-4 Safety Culture *Safety Culture has two general components. The first is the necessary framework within an organization and is the responsibility of the management hierarchy. The second is the attitude of staff at all levels in responding to and benefiting from the framework.*

As a Member of the Nuclear Institute you ***know and understand at a level appropriate to your grade and role the following topics:***

- what is meant by Nuclear Safety.²
- the regulatory regime within which the nuclear industry operates, as applicable to the organisation, sub-sector and national context in which you work.
- the fundamentals of heat removal and containment relating to nuclear safety, including the need for reactor post shut-down cooling and decay heat removal.
- the principles of nuclear physics, at a level, breadth and depth applicable to your role and working environment, drawn from the following topics;
 - Structure of an atom e.g. characteristics of electrons, neutrons and protons; mass number, atomic number and isotopes.
 - Nature and effect of radiation, e.g. sources, applications of radioisotopes
 - types of radiation, including, radioactive decay; half-life; ionising radiation - interaction with matter.
 - Methods of reducing exposure to radiation- reducing exposure; equivalent dose; time; distance; shielding.
 - Controlling of contamination – definition of contamination; control methods; contamination monitoring.
 - Physics of nuclear fission & chain reaction.
 - Nuclear Fuel Cycle.
 - Criticality.
 - Nuclear Reactors.
 - Reactor Safety and Hazards.
 - Nuclear Weapons.
- Defence-in-Depth, including redundancy, diversity and segregation.
- emergency procedures, potential emergency situations, alarms and appropriate responses.
- awareness of legal requirements for dealing with radioactive waste and how these apply to your work role and activities.

² IAEA in their Safety Glossary define Nuclear Safety as “The achievement of proper *operating conditions*, prevention of *accidents* or mitigation of *accident* consequences, resulting in *protection* of workers, the public and the environment from undue *radiation* hazards.

Security and Safeguards in the Nuclear Industry

The Nuclear Delta requires an accredited nuclear professional to demonstrate an understanding of the '**security and safeguards implications**' of working in the nuclear industry. As a Member of the Nuclear Institute you are able to **demonstrate that you;**

- comply with organisational and/or site security requirements and act conscientiously in respect of workplace security, including reporting of any security concerns or suspicions.

As a Member of the Nuclear Institute you **know and understand;**

- the nature of potential security threats and the reasons why controls are required.
- work place access and restrictions, including:
 - Personal access to site and restricted areas, including use and safeguard of security passes.
 - Restrictions on items brought onto, removed or used on site.
 - General security principles and practices (need to know; steps to avoid accidental security breaches; vigilance; know-how to follow specific procedures; good practice).
- management and safeguard of sensitive information, including:
 - Local policy, requirements and rules, including document classification system.
 - Correct handling and storage of information, as it applies to your job role.
 - Correct IT security practices (log – on/off/locking PCs; password strength and protection; careful use of laptops, especially off-site).
- restrictions on transmittal of sensitive information and precautions when using electronic communications (telephone, especially mobiles; email, facsimile machines; messaging services; social media).
- control and management of radioactive materials, including:
 - The need for control and management and the reasoning behind the non-proliferation treaties.
 - Local arrangements and requirements, as these apply to your job role.