|  |
| --- |
|  |
| ONR Technical Assessment Guide  **Licensee Core Safety and Intelligent Customer Capabilities** |



ONR Technical Assessment Guide (TAG)

Licensee Core Safety and Intelligent Customer Capabilities

**Head of Profession** - Human and Organisational Capability

**Authored by**: Organisational Capability Specialist.   
LMfS Specialist.

**Approved by**: Head of Profession.Hread

**Issue**: 7.2

**Published**: July 24

**Next scheduled review**: July 29

**Document reference**: NS-TAST-GD-049

**Record reference**: 2020/265746

Revision commentary

|  |  |
| --- | --- |
| Issue | Description of Update(s) |
| 6 | Fit for purpose review. |
| 7 | Updated review period. |
| 7.1 | Minor update. |
| 7.2 | Fit for purpose review incorporating learning from application and alignment with terminology within relevant good practice. Update of relationship to Safety Assessment Principles, WENRA Reference Levels, IAEA Safety Standards and Guides and references. |

Contents

[1. Introduction 4](#_Toc172109287)

[2. Purpose and scope 5](#_Toc172109288)

[3. Relationship to licence and other relevant legislation 8](#_Toc172109289)

[4. Relationship to Safety Assessment Principles, WENRA Reference Levels, and IAEA Safety Standards and Guides 11](#_Toc172109290)

[5. Advice to Inspectors 15](#_Toc172109291)

[Appendix – Other related terms and definitions 29](#_Toc172109292)

[References 32](#_Toc172109293)

[Glossary and Abbreviations 33](#_Toc172109294)

# Introduction

1. ONR has established its [Safety Assessment Principles](http://www.onr.org.uk/saps/saps2014.pdf) (SAPs) (ref. [1]) which apply to the assessment by ONR inspectors of safety cases for nuclear facilities that may be operated by potential licensees, existing licensees, or other duty-holders. The principles presented in the SAPs are supported by a suite of guides to further assist ONR’s inspectors in their technical assessment work in support of making regulatory judgements and decisions. This technical assessment guide (TAG) is one of these guides.
2. Safety Assessment Principles (SAPs) MS.1 to MS.4 apply to the assessment by ONR specialist inspectors of the organisational capability of licensees   
   (for the purposes of this document the term “Licensee” includes existing and prospective Licensees).

# Purpose and scope

1. The primary responsibility for the safety of a nuclear installation rests with the licensee. The licensee must be able to demonstrate sufficient knowledge of the plant design and safety case for all plant and operations on the licensed site. The licensee must be in control of activities on its site, understand the nuclear safety hazards associated with its activities and how to control them, and have sufficient competent resource within the licensee organisation to be an ‘Intelligent Customer’ (IC) for any work it commissions externally.
2. This TAG provides guidance to help Inspectors assess the suitability of the approaches that a licensee may take to the maintenance of in-house expertise to maintain control and oversight of nuclear safety at all times, and the use and oversight of contractors whose work has the potential to impact on nuclear safety. It considers the licensee’s approach to:

* Identification of the core safety capability that it needs to understand its safety case, manage activities on the nuclear licensed site and deliver nuclear safety;
* Identification of its ‘IC’ capability within the core safety capability to understand, specify, oversee and accept nuclear safety related work undertaken on its behalf by contractors;
* Use of contractors to perform functions that have the potential to impact on nuclear safety.

## Definitions

1. The following words or phrases are used in this document:

* **‘Core Safety Capability’** is a subset of the Nuclear Baseline and should reside within the licensee organisation, but does not necessarily require direct employment by the licensee organisation e.g. embedded contractors. Core Safety Capability is the knowledge, experience and resources that the licensee should maintain within its own organisation in order to be able ensure enduring control and oversee nuclear safety at all times. The licensee’s ‘IC’ and ‘Design Authority’ (DA) functions should form part of the core safety capability.
* ‘**Contractor**’ is defined here as any organisation or individual person that provides a product or service for a licensee under a commercial contract that is: not in the licensee’s direct employment or formally seconded to the licensee from the licensee’s parent company, are subject to licensee's IC oversight and are employed by companies external to the licensee/licensee's parent company.
* **‘Embedded Contractor’** means individuals or members of contractor organisations that are subject to the licensee’s onboarding and competency processes and are trained and work to the licensee’s arrangements and established organisational culture. These personnel do not need to be subject to supervision different from that of a normal employee. Embedded Contractors can be part of the Core Safety Capability and can act as an Intelligent Customer. For further guidance regarding contracts of employment, refer to the Enforcement Guide from the Health and Safety Executive (HSE) (ref. [2]).
* ‘**Intelligent Customer**’ (IC) enables the organisation to maintain a clear line of sight to the safety case and underpinning justification for products or services bought on its behalf. IC is the capability of an organisation to understand where and when work is needed; specify what needs to be done; understand and set suitable standards; supervise and control the work; and review, evaluate and accept the work carried out on its behalf.

The SAPs define IC as:

‘The capability of an organisation to understand where and when work is needed; specify what needs to be done; understand and set suitable standards; supervise and control the work; and review, evaluate and accept the work carried out on its behalf” (ref. [1]).

It is currently defined by the IAEA (ref. [3]) as follows:

‘An organisation (or individual) that has the competence to specify the scope and standard of a required product or service and subsequently assess whether the supplied product or service meets the specified requirements’

* **‘Controlling Mind’** is set out in the Nuclear Energy Agency (NEA) guide (ref. [3]). It states that, ‘The licensee retains primary responsibility for safety’. The Safety Mangement Prospectus should confirm the licensee as the ‘body corporate’ and ‘controlling mind’. It should be clear that there will not be undue interference from parent body organisations and their owners, and that adequate financial resources will be made available to allow the licensee organisation to meet its statutory obligations.
* **‘Contractorisation’** the process of outsourcing works, supplies or services to contractors.
* **‘Design Authority’** (DA) is the defined function of a licensee’s organisation with the responsibility for, and the requisite knowledge to, maintain the design integrity and the overall basis for safety of its nuclear facilities throughout the full lifecycle of those facilities. ONR considers that the concept of DA relates to the attributes of a licensee organisation but recognises that this is made up via the collective capabilities of individual post holders and forms part of the licensee organisation’s safety case.

1. Inspectors should be aware that IC roles typically arise in the following areas, however it should be noted that this is not a definitive list and includes a mixture of roles, lifecycle phases and functional areas.

* Decommissioning
* Design and engineering
* Directors/Executives
* IT management in relation to design, installation or maintenance
* Plant operations and maintenance
* Procurement and supply chain management
* Project Management
* Quality Management
* Safety case
* Site construction/commissioning
* Training

1. Refer to the [Appendix](#_Appendix_One) for additional terms and their definitions, which are not used within this guidance, but may be used within industry.
2. This guidance may also be used to inform ONR assessment of the procurement of safety critical equipment which will be manufactured to the specification of the licensee or others formally appointed to act on its behalf.

# Relationship to licence and other relevant legislation

## The Health and Safety at Work etc. Act 1974

* Sections 3 and 4 of the Act give employers general duties to protect the health and safety of people they do not directly employ and those who have access to their premises.
* Section 6 of the Act places duties on any person who designs, manufactures, imports or supplies any article for use at work.

## The Energy Act 2013

* Part 3 – Nuclear Regulation-describes the purpose and functions of ONR.
* Schedule 8 – Inspectors - describes the appointment and powers of Inspectors.
* Schedule 10 – Provisions Relating to Offences.

## The Management of Health and Safety at Work Regulations 1999

* Regulation 3 requires every employer to make a suitable and sufficient assessment of the risks to the health and safety of people other than direct employees in connection with the work they are undertaking for the employer.
* Regulation 11 requires two or more employers, who share a workplace, to co-operate and co-ordinate with each other to comply with health and safety requirements.
* Regulation 12 requires that any employees from an outside undertaking are provided with comprehensive information by the employer relating to the risks to their health and safety arising from the work they are undertaking for the employer.

## The Construction (Design and Management) Regulations 2015 (CDM 2015)

* These regulations impose requirements and prohibitions with respect to the design and management aspects of construction work.

## Nuclear Installations Act 1965 (NIA)

* The NIA requires ONR to attach conditions to nuclear site licences as necessary in the interests of safety. Most of the conditions attached to the nuclear site licences apply to relevant work undertaken by contractors. Safety refers to the safety of persons whether on or off the site.

## Nuclear Site Licence Conditions

* **LCs 6 and 25 Documents, Records, Authorities and Certificates, and Operational Records.** These conditions require a licensee to ensure that contractors and vendors supply relevant documents and records as specified under contract by the licensee, for example on completion of work.
* **LC 7 Incidents on Site.** This condition requires a licensee to ensure that contractors are aware of and engaged in arrangements to report incidents.
* **LC 9 Instructions to Persons on Site.** This condition requires a licensee to ensure that contractors on site are given adequate instructions about hazards and emergency arrangements.
* **LC 10 and 12 Training, and Duly Authorised Persons and Other Suitably Qualified and Experienced Persons.** These conditions require a licensee to ensure that anyone carrying out work that may affect nuclear safety on the site is suitably qualified and experienced (SQEP). This includes all of the supply chain of the site and, where appropriate, off-site work by contractors and vendors, wherever in the world they happen to be.
* **LC 11 Emergency Arrangements.** This condition requires a licensee to consider, where necessary, the new hazards that contractors may bring to site in the site emergency plan.
* **LC 17 Management Systems.** This condition requires a licensee to make and implement adequate quality management arrangements in respect of all matters which may affect safety encompassing work carried out for the site by contractors whether as an on-site contractor or as a vendor of products and services.
* **LC 18 Radiological Protection.** This condition requires a licensee to make and implement arrangements for the radiological protection of all workers on site, including contractors.
* **LCs 19 to 22 Construction, Installation and Modification of New Plant, Commissioning, and Modification or Experiment on Existing Plant**. These conditions require a licensee to make and implement arrangements to control construction, modification, commissioning etc. of plant which include arrangements for appropriate control and oversight of work performed by contractors.
* **LC 26 Control and Supervision of Operations.** This condition requires a licensee to ensure that all operations that may affect safety are under the control and supervision of persons who are formally appointed as suitably qualified and experienced (SQEP) by the licensee.   
  This strengthens the general requirements of the Health and Safety at Work etc. Act 1974 by specifying the need to ensure the competence of supervisors and imposes a duty to control work.
* **LC 36 Organisational Capability.** This condition requires a licensee to provide and maintain adequate financial and human resources to ensure the safe operation of the licensed site, and to make and implement adequate arrangements to control any change to its organisational structure or resources which may affect safety.

# Relationship to Safety Assessment Principles, WENRA Reference Levels, and IAEA Safety Standards and Guides

## Safety Assessment Principles (SAPs)

1. The SAPs for Nuclear Facilities (ref. [1]) provide a framework to guide regulatory decision making in the nuclear permissioning process. They are supported by TAGs which further aid the decision-making process.   
   The following principles are of particular relevance to this TAG:

* MS.1. Leadership. Identifies the need for directors, managers and leaders to focus the organisation on achieving and sustaining high standards of safety and on delivering the characteristics of a high reliability organisation.
* MS.2. Capable Organisation. Identifies the need for an organisation to have the capability to secure and maintain the safety of its undertakings.
* MS.3. Decision Making. Identifies the need for decisions at all levels that effect safety to be informed, rational, objective, transparent and prudent.
* MS.4. Learning from Experience. Identifies the need to learn lessons from internal and external events to continually improve leadership, organisational capability, the management system, safety decision making and safety performance.
* DC.7. Organisational arrangements should be established and maintained to ensure safe and effective decommissioning of facilities.

## Technical Assessment Guides

1. The following TAGS are applicable to this TAG:

* **NS-TAST-GD-027 – Training and Assuring Personnel Competence** - Informs regulatory expectations of a licensees’ training processes and arrangements for assuring competence including the requirement for a systematic approach to the identification and delivery of personnel competence (ref. [4]).
* **NS-TAST-GD-048 – Organisational Change** - sets out the broad principles which underpin ONR’s expectations of a licensee’s arrangements to provide and maintain adequate financial and human resources and to control changes to its organisational structure or resources which may affect safety (ref. [5]).
* **NS-TAST-GD-065 – Function and Content of the Nuclear Baseline** - addresses the means by which the licensee demonstrates that its organisational structure, staffing and competencies are, and will remain, suitable and sufficient to manage nuclear safety throughout the full range of the licensee’s business. It provides the foundation from which organisational change can be assessed (ref. [6]).
* **NS-TAST-GD-072 – Function and Content of a Safety Management Prospectus** - expects the licensee to be able to demonstrate via the SMP a coherent approach to safety management incorporating organisation, resources and management systems (ref. [7]).
* **NS-TAST-GD-077 – Supply Chain Management Arrangements for the Procurement of Nuclear Safety Related Items or Services** - informs regulatory assessment of supply chain arrangements which are particularly important to the supply of products or services significant to nuclear safety designated for use in the UK (ref. [8]).
* **NS-TAST-GD-079 – Licensee Design Authority Capability -** sets out the ONR’s expectations for existing and prospective licensees’ DA capability (ref. [9]).

1. Also, ONR’s Licensing of Nuclear Installationsguidance sets out ONR’s expectations of a licensee’s IC capability, including the requirement for the licensee to have sufficient, suitably qualified and experienced staff, and for the creation of a DA function within the licensee. It also expects the licensee to develop appropriate strategies to transfer expert plant design knowledge from the vendor [10].

## Relevant WENRA Safety Reference Levels

1. The objective of the Western European Nuclear Regulators Association (WENRA) is to develop a common approach to nuclear safety in Europe by comparing national approaches to the application of IAEA safety standards. The Reactor Harmonisation Working Group Report represents good practice in the WENRA member states [11]. The following issues have been embodied within this TAG and should be taken into account by the inspector:

* Issue A: Safety Policy – Key elements of the safety policy shall be communicated to contractors, in such a way that licensee’s expectations and requirements are understood and applied in their activities.
* Issue B: Operating Organisation – Organisational structure, management of safety and quality, sufficiency and competency of staff.   
  It identifies the need for:
  + Organisational structure for safe and reliable operation of the plant, and for ensuring an appropriate response in emergencies, shall be justified and documented.
  + The licensee shall ensure that plant activities and processes are controlled through a documented management system covering all activities, including relevant activities of vendors and contractors, which may affect the safe operation of the plant.
  + The licensee shall maintain, in house, sufficient and competent staff and resources to specify, set standards, manage and evaluate safety work carried out by contractors.
  + The licensee shall always have in house, sufficient, and competent staff and resources to understand the licensing basis of the plant (for example, Safety Analysis Report or Safety Case and other documents based thereon), as well as to understand the actual design and operation of the plant in all plant states.
* Issue C: Management system, process implementation, identifies the need for:
  + The control of processes, or work performed within a process, contracted to external organisations shall be identified within the management system. The licensee shall retain overall safety responsibility when purchasing any products or contracting any services. It shall be ensured, that sufficient comprehension and knowledge about the product or service, that is being procured, are available within the licensee’s organisation
  + The licensee organisation shall ensure that its suppliers and contractors whose operations may have a bearing on the plant safety comply with C4.1 and C4.2 (safety culture requirements) in a way that ensures that the resulting interfaces with the plant support the standards and expectations

1. Suppliers of products and services should be selected based on specified criteria and their performance should be evaluated.

## IAEA Safety Standards

1. The IAEA Safety Standards, Requirements and Guides were the benchmark for the revision of the SAPs in 2014 and are recognised by ONR as relevant good practice. They should therefore be consulted, as appropriate, by the Inspector. The following requirements and guides are applicable:

* Fundamental Principle 1: Responsibility for Safety - states that, ‘The prime responsibility for safety must rest with the person or organisation responsible for the facilities and activities that give rise to radiation risks’.
* IAEA Safety Standard No. GSR Part 2 – “Leadership and Management for Safety” (ref. [12]) - defines the requirements for establishing, implementing, assessing and continually improving a management system that integrates safety, health, environment, security, quality and economic elements to ensure that safety is properly taken into account in all the activities of an organisation. Section 3 ‘Leadership for Safety’ and Section 4 ‘Management for Safety’, includes management of resources, processes and activities, and are particularly relevant to the use of contractors and IC capability.

# Advice to Inspectors

## Background

1. Licensees should understand the knowledge, functional specialisms and resources that they need to maintain within their organisations to be able to maintain control and oversight of safety at all times. They should be able to demonstrate a ‘core safety capability’ within the licensee organisation that has sufficient competent persons to be able to maintain control and oversight of safety at all times. This core safety capability will include, but not necessarily be limited to, technical, operational and managerial resources. Licensees will also be expected to demonstrate that, within their core safety capability, they have sufficient in-house expertise to fulfil specific roles relating to intelligent customer and design authority.
2. A licensee’s core safety capability should, where possible, comprise of directly employed, competent staff. However, ONR recognises that direct employment by the licensee organisation may not be the preferred model for some licensee organisations and its core safety capability may include staff seconded from parts of a parent company and selected embedded contractors. However, consideration should be given to the balance, and underpinning justification, of directly employed staff, to staff employed by other means, that make up the core safety capability.
3. Licensees may choose to use contractors to carry out some activities.   
   Decisions regarding use and management of contractors were a direct contributor to a number of events and near misses across the nuclear and other high hazard industries – for example, in the construction of new nuclear power stations at Flamanville in France and Olkiluoto in Finland, also the explosion and fire at the Buncefield oil storage depot in 2005, and the Deepwater Horizon drilling rig explosion in 2010.
4. The aim of this guide is to help Inspectors assess whether or not a licensee has adequate arrangements to establish and maintain IC capability, that they need to manage safety, and to retain control of items and services that are contracted out. It should be read in conjunction with NS-TAST-GD-077   
   (ref. [8]) and NS-TAST-GD-079 (ref. [9]) which make specific references to the use of contractors and IC capability.
5. ONR has the expectation that a licensee should:

* produce and maintain an IC Policy;
* embed the implementation of IC within the management arrangements and which could include the use of Quality Plans or equivalent;
* ensure that personnel carrying out an IC role are clearly aware of their accountabilities and responsibilities;
* ensure that personnel are competent for the IC work they are responsible for and they are identified with IC competencies, within a particular post, on the Nuclear Baseline;
* be able to demonstrate that the IC activities identified as being required have been carried out satisfactorily;
* carry out a health check of the implementation of IC through self-assessment, internal audit, internal assurance and as appropriate external assurance and/or 3rd Party Certification Bodies.

## Principles on the use and management of contractors

1. There are some broad principles which underpin ONR’s expectations of a licensee’s arrangements for the use of contractors and for retaining control of nuclear safety. These are summarised below and then interpreted in the sections that follow:
2. The licensee should maintain a core safety capability to ensure effective control and oversight of nuclear safety.
3. The licensee shall retain overall accountability, control and oversight of the nuclear safety of all of its business, including work carried out on its behalf by contractors.
4. The licensee should be informed by a company policy that takes into account the nuclear safety implications of sourcing work in-house or from contractors.
5. The licensee should maintain an IC capability on the nuclear baseline for all work carried out on its behalf by contractors that may impact upon nuclear safety.
6. The licensee should ensure that it only lets contracts for work, with nuclear safety significance, to contractors who are suitably competent, with adequate resources, underpinned by a management system that promotes a positive safety culture, learning and safety standards.
7. The licensee should ensure that all relevant contractor staff adequately understand the nuclear safety significance of their work and the licensee should interface with contractor staff in a well co-ordinated manner.
8. The licensee shall implement adequate arrangements to ensure that contractors’ work is carried out to the required level of safety and quality in practice.

## Principle one

**Licensees should maintain a core safety capability to ensure effective control and oversight of nuclear safety.**

1. The licensee should be able to identify and maintain the core safety capability that it needs to maintain effective management for nuclear safety. ONR expects the licensee to, within its own organisation, have sufficient competent persons to be able to maintain control and oversight of safety at all times. This ‘core safety capability’ will include technical (for example, design authority, engineering, safety case capability), operational and managerial elements. Together they combine to ensure that the safety case for the installation is understood and maintained, and that the site, and plants or projects are operated in accordance with the safety case and the conditions of the nuclear site licence.
2. The licensee should be able to demonstrate that it is sustaining its core safety capability and that this capability is resilient – in other words, the licensee understands challenges to its retention of this capability and has put in place measures to mitigate them. Such measures may include vulnerability analysis, succession planning, review of the availability of external capability etc.
3. The most secure source of core safety capability is generally direct employment of competent staff. ONR recognises that direct employment by the licensee organisation may not be the preferred model for some licensee organisations and its core safety capability may include staff seconded from parts of a parent company and selected embedded contractors. In such instances, the licensee must be able to demonstrate that it has formal and robust arrangements in place to ensure that it will, at all times, have access to sufficient, competent staff and that those staff cannot return to the parent company individually or as a group, unless there are appropriate arrangements in place to ensure continuity of core safety capability.
4. The licensee’s approach to identifying and managing its core safety capability should initially be set out in its Safety Management Prospectus (refer to ref. [7]) and developed in more detail using an established methodology set out in its Nuclear Baseline (refer to ref. [6]). The continued suitability of this approach should be periodically reviewed and kept live.
5. The licensee Board should put arrangements in place to assure itself that key decisions relating to the core safety capability are subject to robust challenge and scrutiny. It should also be actively involved in assessing the implications, and monitoring the subsequent implementation, of proposed organisational changes where key activities with the potential to impact on nuclear safety may be outsourced or the size of the core safety capability significantly reduced. New licensees whose primary objective is to construct new nuclear power stations should:

* Take into consideration their core safety capability needs commensurate with stages of the project. In the pre-construction stage, ONR acknowledges that much of the knowledge of plant design may reside with the Responsible Designer (RD). The licensee should develop an appropriate core safety capability to manage the totality of its activities as a licensee which includes sufficient resource to act as an IC for the services provided by the RD or other provider. It is important to note that, although the RD may have an enduring role, it should always be regarded as a key external resource and not a part of the licensee’s core safety capability.
* Be able to demonstrate that they understand when and how much capability they need to develop in house or transfer into the licensee organisation from the RD as the project progresses including a strategy and plan to achieve this. It is expected that the licensee’s core safety capability will increase and the role of the RD will diminish as the project progresses through the pre-construction, construction and commissioning phases, and into operations.

1. Established licensees should:

* Be able to justify the size of their core safety capability and demonstrate how they are maintaining it via their arrangements for complying with   
  LC 36 ‘Organisational Capability’. This will include a justification of the level of technical, operational and managerial and other key resources, and the level of resource required to fulfil specific roles such as IC and DA as part of the overall core safety capability. It is important to note that IC and DA are sub-sets of the overall licensee core safety capability.   
  The nuclear baseline should specifically identify posts containing roles with the potential to impact on nuclear safety.
* Consider the nuclear safety implications arising from the potential for loss or degradation of core safety capability over time, particularly if they are considering contracting out major parts of their technical capability. The impact of such an approach should be fully assessed, justified and shared with ONR using the licensee’s management of organisational change arrangements.

1. The Inspector should consider whether or not:

* The licensee has a rationale and justification for its current and future core safety capability and whether this methodology clearly identifies key posts which hold roles such as IC and DA.
* There is adequate evidence to demonstrate that core safety capability is being maintained at the level specified by the licensee and regularly monitored and reviewed by the licensee Board.

## Principle two

**The licensee shall retain overall accountability, control and oversight of the nuclear safety of all of its business, including work carried out on its behalf by contractors.**

1. The NIA places a duty on the licensee to ensure that the conditions of the licence are complied with. The licensee is not able to delegate this overall responsibility to contractors, service providers or others who do work on its behalf (refer to the definition of ‘contractor’ in section 2.1). The licensee therefore must retain overall responsibility and accountability for nuclear and radiological safety and security at all times, and ONR considers that in order to do this it must maintain a suitable level of control and oversight of those who are carrying out work on its behalf.
2. In order to retain this control and oversight, the licensee needs to identify the potential nuclear safety significance of its activities in relation to the safety case and bear this in mind when making decisions about whether to retain those activities using in-house resources or whether they can be contracted out. These decisions should be informed by a company policy on the use of contractors (refer to Principle 3 in section 5.5).
3. Decisions will be affected not only by nuclear safety significance, but also by the nature of the work being considered. For example, if the licensee is considering contracting out the management of some activities as opposed to performing operations or administrative functions using its own resources, it may be appropriate to question whether the licensee can remain in control of those activities. Similarly, if the licensee is considering using contractors to deliver functions which are core to the continued safe operation of its facility, it is reasonable to seek confidence that the licensee is able to retain the capability to make and enact its own decisions on safety matters.
4. In such instances, the licensee must be able to demonstrate that, through a combination of technical competence, understanding of the work, management arrangements, relationship with the contractor, and assurance of the contractor’s management arrangements, that the licensee retains adequate and enduring control of the nuclear safety risks by being the IC for all work carried out by contractors on its behalf i.e., the controlling mind. **Note**: other legislation requires the attributes of IC to be in place but are not explicit, examples include health and safety legislation, such as CDM 2015 (ref. [13]).
5. The licensee, as the controlling mind, may take a graded approach to acting as the IC. This should be set out in their arrangements. Decisions on the level of IC oversight required, via this graded approach, will be determined by assessing the level of nuclear safety significance posed, by considering the work activity, its nuclear safety risk and any IC surveillance already undertaken.
6. It should also be noted that the licensee Board is the ultimate IC for activities undertaken on its behalf on the nuclear licensed site. It should demonstrably own the company policy on the use of contractors (refer to Principle 3 in section 5.5) and ensure that arrangements are in place to monitor the effectiveness of work undertaken by contractors on its behalf. There should be evident good practice of the board members being suitably trained in IC to be able to discharge their role.
7. The Inspector should consider whether or not:

* The licensee has robust, auditable policies and arrangements in place through which it can demonstrate that:
  + The licensee has retained within its own organisation, at all times, proportionate capability for the activities being undertaken, to make, and take responsibility and accountability for informed, prudent and timely decisions and actions affecting nuclear safety.
  + The licensee is the controlling mind and will remain in control at all times of work with nuclear safety implications that is carried out on its behalf by contractors.
  + Adequate arrangements are in place to maintain control and oversight of work with nuclear safety implications that is carried out on its behalf by contractors.
  + There is a clear line of sight and evidence of responsibility being exercised in a proportionate manner, from the Board down, for all work placed with the supply chain with nuclear safety implications and any proposed organisational changes that may affect the size of the core safety capability or IC capabilities. There should be evidence through competency assessment within the Licensee.

## Principle three

**The Licensee should be informed by a company policy that takes into account the nuclear safety implications of sourcing work in-house or from contractors.**

1. The licensee should have a clear policy and rationale for sourcing work in-house or with the supply chain/contractors (a ‘make or buy’ policy).   
   This policy should take adequate account of the short and long-term nuclear safety implications of using contractors.
2. Licensee organisations should be able to justify that nuclear safety considerations were taken into account as part of their informed decision making, which led to the use of contractors. This may differ according to the maturity of the licensee organisation.
3. For new build organisations, the approach to the use of contractors should be explained in its Safety Management Prospectus. The approach should recognise the need for, and demonstrate, the ability of the licensee to retain control and oversight of nuclear safety and to deliver an adequate IC capability. This is particularly important where a new build organisation intends to appoint a RD to develop the UK specific design. In such instances, the licensee must be able to demonstrate that it is in control of the new build project and has adequate arrangements and resources to oversee work being undertaken on its behalf by the RD.
4. For established licensees, the use of contractors may have increased, without a coherent policy. In such instances, the licensee should be able to provide evidence to justify its approach and demonstrate that it will not have a detrimental effect on nuclear safety. Use of the policy should be evident when significant organisational changes are being formulated whether or not to retain services and resources in-house or to outsource them from the supply chain. Although commercial considerations may influence that choice they should not outweigh or override safety.
5. The licensee should be able to demonstrate that it has a process to consider potential organisational vulnerabilities arising from dependence on contractors which ideally links to or is integrated with the nuclear baseline. Vulnerability may increase as a result of factors such as the scarcity of, and demand for, the services that the contractor provides, the degree of site-specific knowledge required for the task, and how readily available SQEP replacements are, either in-house or in the marketplace.
6. Where contracted work may create a dependency on singleton or specialised contractors for essential safety related work, such as maintenance, ONR expects the licensee to have identified this as part of a structured vulnerability assessment and be able to justify the decision; and explain what the contingency and succession arrangements would be, should the contract terminate. The vulnerability assessment should result in actions to mitigate individual vulnerabilities which are monitored and managed as part of the licensee’s human resource processes.   
   The vulnerability analysis should be subject to regular review.
7. The Inspector should consider whether or not:

* The licensee has a clear policy and rationale for use of contractors and there is evidence that the policy is being used in practice.
* Licensee management is able to explain and justify the extent of its current and future reliance on contractors.
* Contractorisation proposals may potentially weaken the control of the licensee or introduce ambiguities over the legal positions of the parties involved. In such instances the Inspector should seek the advice of the ONR Leadership and Management for Safety specialist.
* Where a licensee has contracted out functions, or is proposing to do so, it can show that the risks of doing so have been adequately assessed and managed with clear reasoning for contracting out the function.   
  This includes considering whether:
  + Contracting out the task could compromise the licensee’s retention of core safety capability;
  + Contracting out the work introduces potential for additional challenges to nuclear safety and, where this may be so, showing how these risks are managed;
  + The licensee has considered potential vulnerabilities arising from loss of services provided by contractors with key nuclear safety related capabilities and, where appropriate, identified contingency arrangements. This may include consideration of whether or not the knowledge required for the task is scarce or more generally available in the market place, or whether there will be sufficient competent staff in-house to provide effective care and maintenance until replacement contract support can be found;
  + The licensee has a process to assess and manage organisational vulnerabilities arising from the use of contractors.

## Principle four

**The licensee should maintain an ‘intelligent customer’ capability, on the nuclear baseline, for all work carried out on its behalf by contractors that may impact upon nuclear safety.**

1. The licensee may choose to contract out work which has the potential to impact upon nuclear safety. The licensee remains in control at all times of work with nuclear safety implications that is carried out on its behalf by contractors on the nuclear licensed site The licensee should be able to demonstrate that, within its core safety capability, it has a suitable and sufficient competence, resource and arrangements to understand where and when work is needed; specify requirements to carry out that work; understand and set suitable standards; supervise and control the work; and be able to review, evaluate and accept the work carried out on its behalf.
2. The licensee should be able to demonstrate that it understands the need to retain an IC capability and it has put in place arrangements to determine the range of functions for which it requires IC capability. It should be able to demonstrate that it has the ability to make informed judgements about the depth of knowledge and level of SQEP resource it will require to maintain its IC capability for each function. It should be noted that IC is a function of the licensee as a whole, and the IC capability to manage contracted work is likely to be vested in a number of suitably trained and experienced individuals, who are informed of their responsibilities.
3. It is expected that a licensee will develop proportionate IC arrangements for the construction of new nuclear facilities. These arrangements should be an integral part of its management system and reflect the IC requirements commensurate with the lifecycle phases of the project i.e., design, procurement, construction, installation, commissioning, and operation.   
   The arrangements should ensure that, in the event that individuals holding IC roles change during the course of the project, or IC responsibilities change as the project moves from one phase to the next, there is a mechanism to formally handover IC responsibility from one role holder to the next. Proportionate IC oversight should also be part of the licensee’s arrangements for work carried out by the supply chain that is not nuclear safety related.
4. The licensee should be able to demonstrate that it is delivering its claimed IC capability. For example, if contractors are used to prepare a safety case, the licensee must be competent to ensure that the contractor is suitably qualified and experienced, follows an appropriate methodology, and uses the correct data and assumptions. The licensee should have sufficient knowledge to understand the limitations and implications of the analysis to its safety case; to question and challenge the contractor’s work; and to show that it has applied an appropriate degree of control and oversight in practice.   
   The licensee should be able to lead the presentation of the safety case arguments. However, the licensee need not necessarily have the depth of knowledge required to undertake the detailed analysis itself.
5. The Inspector should consider whether or not:

* The licensee is able to demonstrate that it has arrangements in place to identify and secure the intelligent customer capability needed to conduct its business.
* Arrangements are in place to identify the competencies required to fulfil IC roles and that individuals fulfilling IC roles are demonstrably competent and formally appointed to the roles.
* Posts containing IC roles are clearly identified on the licensee’s nuclear baseline and that these posts are included in the vulnerability assessment.
* Contingency plans are in place to cater for loss of staff or long-term absences in vulnerable areas, particularly where IC numbers are scarce or individuals fulfilling IC roles are singletons.
* The licensee is able to demonstrate the application of IC capability to selected activities by:
  + Explaining how it is able to judge when external expertise is required;
  + Showing that it understands the relevance of any given work carried out by contractors to the safety case;
  + Explaining how the specification for contracted work was derived,
  + Showing how it assessed the technical quality of tenders and proposals;
  + Explaining why the contractor selected was suitable for the specific task;
  + Showing that it monitored the potential impact on nuclear safety of work being performed by contractors, and explaining how it judged if this was adequate;
  + Explaining how it has evaluated the products or services provided and determined that it was of the appropriate quality;
  + Being able to lead the presentation of safety case arguments to the regulator.
* There is any evidence of unsafe or poor quality work by contractors and, if so, is the licensee able to demonstrate that it has identified the problem and has put suitable plans in place to learn from the experience and prevent a reoccurance.
* There is a process through which the licensee’s senior management can gain assurance that the licensee has retained a suitable core safety capability and IC capability, and that this is effective and robust in ensuring the safe performance of contractors.
* Arrangements have been developed for nuclear installation construction projects which ensure that IC responsibilities have been identified for each phase of the project and that they include arrangements for ensuring that there is a formal handover of IC responsibilities between the phases.

## Principle five

**The licensee should ensure that it only lets contracts for work with nuclear safety significance to contractors who are suitably competent, with adequate resources, and a quality management system that promotes a positive safety culture, learning and safety standards.**

1. The licensee’s management system should include a contractor selection and award process that ensures that the expectations of the successful contractor, in terms of competence, standards, management system, organisational culture and resources are clearly specified in the tender documentation (refer to ref. [8]). The process should include an examination of prospective contractors’ overall ability and capacity to deliver the products and services required, certification to an appropriate recognised quality assurance (QA) standard, and safety performance. These requirements should be applied throughout the supply chain (i.e., in sub-contracts between the main contractor and its sub-contractors).
2. The process should also ensure that once the contract has been awarded, the contractor is only allocated work for which it has been assessed and deemed to be competent and capable, and that its performance in delivering the contractual requirements is regularly assessed. The licensee should ensure that it has sufficient resources to oversee and assess contractor performance throughout the supply chain.
3. The licensee should be aiming for an intelligent customer and capable supplier organisation relationship where both deploy suitably qualified and experienced personnel who understand the requirements specified under the contract and are able to communicate them effectively. This is particularly important in the event that contract variations should arise where both parties need to be assured that variations to the contract have been properly conceived, communicated, implemented, and assessed for nuclear safety implications.
4. The licensee should be able to show that it has made, and implemented, appropriate arrangements which provide assurance that its contractors’ competencies are adequate and maintained. There should be a clear auditable trail that demonstrates that contractor’s staff are equally as ‘SQEP’ as licensee staff would be for the same role (refer to ref. [4]), the licensee should be able to show how it has confirmed the adequacy of the contractor’s arrangements for competence assurance.
5. These expectations apply to relevant work by contractors both on the licensed site and at other locations. For example, the licensee should take suitable steps to ensure contractors providing services off-site (for example, authoring of documentation) or manufacture of goods that have a nuclear safety role or function, is carried out by SQEP people regardless of location.
6. The licensee should actively monitor its contractors’ safety management arrangements and performance and make sure any deficiencies are reviewed and acted on as appropriate.
7. The Inspector should consider whether or not:

* The licensee is maintaining a contractor selection and award process that ensures each contractor and subcontractor has:
  + The technical capability, safety and quality performance to deliver contractual requirements without adversely affecting nuclear safety;
  + The competence to carry out the specified work to the required safety and quality standards;
  + Adequate resources, including personnel and equipment, to carry out the work safely;
  + A contractual arrangement that reflects the technical, safety and quality requirements and that these arrangements are consistently applied to sub-contractors; and
  + Allocated work for which it is competent to perform and for which all of the above apply.
* The licensee can demonstrate that it has assured the adequacy of tenders and proposals from contractors, including clear identification of any particular or unusual hazards that their activities will introduce.
* There is evidence at all relevant stages of contract preparation and contractor selection that potential, immediate or latent, nuclear safety risks that could arise from the quality or conduct of the work have been identified and considered as necessary.
* There is evidence that effective action has been taken where contractor performance is judged to be less than adequate.
* The licensee’s procurement procedures address communication and interfaces in the supply chain.
* The licensee actively monitors and gains assurance regarding the continuing suitability of its contractors’ arrangements for delivering the required quality work using competent personnel.
* Procurement procedures include the need for technical and safety SQEPs to be formally appointed as ICs.

## Principle six

**The licensee should ensure that all relevant contractor staff adequately understand the nuclear safety implications of their work, and the licensee should interface with contractor staff in a well co-ordinated manner.**

1. The licensee should provide its contractors with sufficient information and instruction to ensure that contractors’ staff work safely and understand the limits of what they can do. Their appreciation of the hazards should not be confined to the specifics of the task but should include their entire working environment when they are on the licensed site. It is important for contractors to be aware that they share legal accountability for the safety of their operations on the licensed site (ref. [14]).
2. The licensee should be able to demonstrate that this principle applies throughout the supply chain where necessary. It is not sufficient to gain assurance that the main contractor understands the nuclear safety implications of its work; the licensee should seek assurance that sub-contractors also have an appropriate level of understanding.
3. Where contractors have a continuing relationship with the licensee, the licensee should ensure that they become an integral part of the licensee’s safety culture. For example, including contractors in safety briefs, working groups, behavioural safety initiatives, audits etc.
4. The licensee should also ensure that contractors are suitably inducted onto the site and that licensee behavioural expectations, as well as technical job performance, are effectively communicated and understood by the contracting organisation and its staff.
5. The licensee should ensure that there are clear arrangements, which are understood by all parties, for coordination, communication, and authorisation of work between the licensee (including embedded contractors), contractors, and subcontractors.
6. The licensee’s’ procurement processes should consider the potential number of sub-contract layers/tiers when awarding contracts, with the objective of avoiding unnecessarily long supply chains. The licensee should also ensure that there is effective communication and interface between each link in the supply chain to ensure that the licensee’s requirements are clearly understood and effectively cascaded to each contractor.
7. The Inspector should consider whether or not:

* There is evidence that, at all relevant stages of a contract, the following items have been identified and appropriate control measures agreed and communicated, as necessary, to all contractor and sub-contractor staff working on the licensed site and their understanding verified:
  + Immediate or latent nuclear safety risks from inadequate quality of work or errors by contractors or subcontractors;
  + Radiological risks to contractor staff from the licensee’s plant and processes;
  + Rules and instructions including, but not confined to, emergency arrangements;
  + Arrangements for authorising and managing work;
  + Arrangements for communication between all parties;
  + Quality management arrangements.
* There is evidence that contractors have been suitably inducted onto the site and are aware of the standards and behaviours expected to support the licensee’s safety culture.
* Adequate information has been provided to licensee staff and others who may come into contact with a contractor concerning the nature, extent and control of the contractor’s work.
* Contractor staff with a frequent or permanent presence on the site have been given equivalent status to licensee staff and are being included in the licensee’s normal two-way safety communications and other relevant safety activities.

## Principle seven

**The licensee shall implement adequate arrangements to ensure that contractors’ work is carried out to the required level of safety and quality in practice.**

1. The licensee’s arrangements for supervising contractors shall be proportionate to the risks of the work being undertaken, and the capabilities and track record of the contractor. Contracting out work does not lessen a licensee’s legal accountability for the work done on its behalf and the degree of control and oversight shall be proportionate to the nuclear safety risk.   
   The licensee shall always have in house, sufficient, and competent staff and resources to understand the licensing basis of the plant safety case, as well as to understand the actual design and operation of the plant in all plant states.
2. The licensee should judge whether or not it is able to reduce the level of supervision based on its assessment of the adequacy of the contractor’s safety management and quality assurance arrangements. The licensee should be able to demonstrate that it is aware, and in control of, the standards of work throughout the supply chain, proportionate to nuclear safety implications.
3. The licensee’s arrangements should provide for work performed by contractors to be confirmed as complete in accordance with the technical specification, and formally accepted by the IC. Expert resource could be engaged as appropriate to provide this assurance.
4. The Inspector should consider whether or not:

* The licensee is able to demonstrate that it has adequate arrangements and resources to monitor contractor, and sub-contractor, performance to a degree that takes into account the hazards and risks associated with the tasks and the capabilities and previous performance of the contractor.
* There is evidence from the performance of contractor and sub-contractor staff on site that the licensee’s monitoring arrangements are effective.
* The licensee is able to demonstrate that the contractor arrangements to ensure quality, such as quality targets and plans, are effective.
* Licensee contractors and sub-contractors are using up to date and approved technical specifications.

# Appendix – Other related terms and definitions

The following definitions have been included to differentiate from the terminology used within this guidance and clarify their usage. Most terms used within this appendix relate to commercial rather than safety arrangements.

**‘Intelligent Client’** (as defined by the Infrastructure and Projects Authority (IPA) and the Institution of Civil Engineering (ICE)

The definition of an Intelligent Client can be summarised from the guidance and good practice defined by the IPA, and the ICE. It relates to how an organisation procures and manages projects and programmes rather than individual pieces of work and can be considered to be the strategic operation of the IC capability.

There is some overlap with IC terminology, but it is not an equivalent term.

The Intelligent Client is referred to by the ICE in its Intelligent Client Capability Framework (ref. [15]). The Framework incorporates the principles in the UK Project Initiation Routemap (ref. [16]) by directing users to reflect on their own capability and identify areas for the incorporation of good practice. It provides role-specific guidance and therefore should be considered as one aspect of continuing professional development. It is a systematic means of identifying areas for capability enhancement for individuals who are undertaking the role of the client. This is achieved through the consideration of the issues associated with the role during project/programme initiation, procurement and delivery including:

* Adequately testing the business case;
* Providing continuity of investment/funding;
* Accurately translating and communicating the high level requirements to key stakeholders;
* Ensuring maximum value is derived from all relationships;
* Supporting those relationships with responsible and effective governance arrangements and appropriate interface management; and
* Articulating the nature and shape of the organisation required to deliver.

Researchers from the Engineering Project Academy at the University of Leeds   
(ref. [17]) see the Framework as having the potential to effect real change in the way Civil Engineers contextualise projects. The capabilities in the framework are based on a public sector back catalogue of real UK projects and research into the decisions ultimately driving poor performance. It sets out that Intelligent Client organisations are capable of specifying the requirements to external participants and managing the delivery outcomes.

The Framework incorporates the principles used in Infrastructure UK’s “Improving Infrastructure Delivery” (ref. [18]), developed to support successful clienting of major economic infrastructure.

**‘Intelligent Client’** (as defined by the UKs Government Property Function (GPF))

There is also guidance from the GPF on Intelligent Client roles (ref. [19]).   
Effective functioning as an Intelligent Client requires a good understanding of the overall governance that applies to managing government property. Essential aspects of the role are that:

* Accounting Officers for each government organisation are answerable ultimately to Parliament for the finance and property assets they control, as well as to Ministers;
* Each Intelligent Client role is set within a system of accountabilities that serves the interests of the organisation and government as a whole; and,
* Intelligent Client roles connect reporting lines and accountability from Accounting Officers and government ministers to operational personnel of all kinds, whether they are employees of the civil service or external service providers.

**‘Informed Customer’** (as defined by the IAEA)

The IAEA states (ref. [12]) that:

“The organization shall have a clear understanding and knowledge of the product or service being supplied. The organization shall itself retain the competence to specify the scope and standard of a required product or service, and subsequently to assess whether the product or service supplied meets the applicable safety requirements… The capability of the organization to have a clear understanding and knowledge of the product or service to be supplied.”

**‘Informed Client’** (as defined by the Royal Institution of Chartered Surveyors (RICS))

The RICS states that an informed client is:

“The body responsible for delivering the project including suppliers accountable within the governance structure” (ref. [20]).

This definition includes directly employed staff, but may also include temporary staff on short-term contracts, agency staff, designers, programme partners, delivery partners and suppliers. There is some overlap with Intelligent Client and IC terminology, but it is not an equivalent term.

**‘Directing mind’**

This term is set out in case law; HL Bolton (Engineering) Co Ltd v TJ Graham [1957] & Sons Ltd which says directors and managers represent the directing mind and will of the company and control what it does. The state of mind of these managers is the state of mind of the company and is treated by law as such. Also, Tesco Supermarkets Ltd. v Nattrass [1972] which sets out the basis for the "directing mind" theory of corporate liability, i.e. in order for liability to attach to the actions of a person, it must be the case that "the person who acts is not speaking or acting for the company. He is acting as the company and his mind which directs his acts is the mind of the company. If it is a guilty mind, then that guilt is the guilt of the company”.

# References

|  |  |
| --- | --- |
| [1] | ONR, “Safety Assessment Principles (SAPs) for Nuclear Facilities - 2014 Edition (Revision 1),” 2020. |
| [2] | HSE, “HSE Enforcement Guide (England & Wales),” 2003. [Online]. Available: https://www.hse.gov.uk/enforce/enforcementguide/index.htm. |
| [3] | OECD, “The Nuclear Regulator's Role in Assessing Licensee Oversight of Vendor and Other Contracted Services,” 2011. [Online]. Available: https://www.oecd-nea.org/jcms/pl\_14594/the-nuclear-regulator-s-role-in-assessing-licensee-oversight-of-vendor-and-other-contracted-services?details=true. |
| [4] | ONR, “NS-TAST-GD-027 - Training and Assuring Personnel Competence”. |
| [5] | ONR, “NS-TAST-GD-048 - Organisational Capability”. |
| [6] | ONR, “NS-TAST-GD-065 - Function and Content of the Nuclear Baseline”. |
| [7] | ONR, “NS-TAST-GD-072 - Function and Content of a Safety Management Prospectus”. |
| [8] | ONR, “NS-TAST-GD-077 - Supply Chain Management Arrangements for the Procurement of Nuclear Safety Related Items or Services”. |
| [9] | ONR, “NS-TAST-GD-079 - Licensee Design Authority Capability”. |
| [10] | ONR, “Licensing Nuclear Installations”. |
| [11] | WENRA, “Safety Reference Levels for Existing Reactors 2020,” 2021. |
| [12] | IAEA, “GSR Part 2 - Leadership and Management for Safety,” International Atomic Energy Agency (IAEA), Vienna, 2016. |
| [13] | ONR, “NS-INSP-GD-074 - Construction (Design and Management) Regulations”. |
| [14] | HSE, “L153 - Managing health and safety in construction - Construction (Design and Management) Regulations 2015,” 2015. |
| [15] | ICE, “Intelligent Client Capability Framework,” 23 Dec 2022. [Online]. Available: https://www.ice.org.uk/download-centre/intelligent-client-capability-framework. |
| [16] | Infrastructure and Projects Authority, “Project Routemap - Setting up projects for success: Governance (UK Module),” [Online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/1080238/Governance\_-\_FINAL.pdf. |
| [17] | N. Madter and D. A. Bower, “Briefing: The ICE intelligent client capability framework,” [Online]. Available: https://eprints.whiterose.ac.uk/81564/1/MPL-S-14-00045.pdf. |
| [18] | Infrastructure UK and the ICG, “Improving Infrastructure Delivery - 2014/15 Work Programme,” Oct 2014. [Online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/359854/ICG\_2014-15\_work\_programme.pdf. |
| [19] | Government Property Function (GPF), “Intelligent Client Roles - Functional Guidance,” 11 Nov 2022. [Online]. Available: https://www.gov.uk/government/publications/intelligent-client-roles-functional-guidance/intelligent-client-roles-functional-guidance-html. |
| [20] | RICS, “The Informed Infrastructure Client, 1st edition,” 23 Sep 2015. [Online]. Available: https://www.rics.org/profession-standards/rics-standards-and-guidance/sector-standards/construction-standards/the-informed-infrastructure-client. |

# Glossary and Abbreviations

CDM 2015 The Construction (Design and Management) Regulations 2015

DA Design Authority

HSE Health and Safety Executive

IAEA International Atomic Energy Agency

IC Intelligent Customer

ICE Institution of Civil Engineering

IPA Infrastructure and Projects Authority

LC(s) Licence Condition(s)

LMfS Leadership and Management for Safety

NEA Nuclear Energy Agency

NIA Nuclear Installations Act 1965

QA Quality Assurance

RD Responsible Designer

SAP(s) Safety Assessment Principle(s)

SQEP Suitably Qualified and Experienced Person/Personnel

TAG(s) Technical Assessment Guide(s)

WENRA Western European Nuclear Regulators’ Association