



ONR GUIDE			
Function and Content of the Nuclear Baseline			
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1. INTRODUCTION

- 1.1. ONR has established its Safety Assessment Principles (SAPs) MS.1 to MS.4 which apply to the assessment by ONR specialist inspectors of the organisational capability of potential and existing licensees. The principles presented in these 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 is one of these guides.

2. PURPOSE AND SCOPE

- 2.1 The Nuclear Baseline (NB) is the means by which the licensee demonstrates that its organisational structure, staffing and competencies are, and remain, suitable and sufficient to manage nuclear safety throughout the full range of the licensee's business. It also provides the foundation from which organisational changes can be assessed in accordance with the licensee's arrangements made under Licence Condition 36.

- 2.2 This TAG sets out ONR's expectations for existing and prospective licensees' development and maintenance of their nuclear baselines.

- 2.3 The following definitions are applicable to this assessment guide:

- **'Core Capability'** means the knowledge, functional specialisms and resources that the licensee should maintain within its own organisation to be able to maintain control and oversight of safety at all times. This core capability will include technical, operational and managerial elements.
- **'Contractor'** means any organisation or individual person that provides a service for a licensee under a legally binding contract that is not in the licensee's direct employment or formally seconded to the licensee from the licensee's parent company. This definition also includes divisions or functions of the parent company organisation appointed by the licensee organisation to provide specific services e.g. Architect Engineer or Responsible Designer services.

The definition excludes individual contractors or members of contractor organisations which the licensee is able to demonstrate as being fully embedded in the licensee organisation to the point that they can be regarded as employees for health and safety law purposes, and 'seconded' from a parent company or parent body organisation.

- **'Intelligent Customer'**. The concept of intelligent customer (IC) was developed by ONR and has gained international acceptance. As an intelligent customer, in the context of nuclear safety, the management of the facility should know what is required, should fully understand the need for a contractor's services, should specify requirements, should supervise the work and should technically review the output before, during and after implementation. The concept of intelligent customer relates to the attributes of an organisation rather than the capabilities of individual post holders. The term 'intelligent customer' encompasses the IAEA expression 'informed customer'.

3. RELATIONSHIP TO NUCLEAR SITE LICENCE AND OTHER LEGISLATION

- 3.1 The Management of Health and Safety at Work Regulations 1999

- Regulation 5 requires employers to have arrangements as appropriate for the effective planning, organisation, control, monitoring and review of the preventive and protective measures;
- Regulation 7 requires an employer to appoint competent persons to assist him in undertaking the measures he needs to comply with the requirements and prohibitions imposed on him.

3.2 Nuclear Installations Act (1965) as amended (NIA)

- The NIA requires ONR to attach conditions to nuclear site licences as necessary in the interests of safety.

3.3 Nuclear Site Licence Conditions

- **LC 6 – Documents, Records, Authorities and Certificates.** The licensee shall make adequate records to demonstrate compliance with any of the conditions attached to the nuclear site licence. The NB should be regarded as an important record to demonstrate that the licensee’s 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.
- **LC 10 – Training.** The licensee shall make and implement adequate arrangements for suitable training of all those on site who have responsibility for any operations which may affect safety. Staff fulfilling nuclear baseline roles, as roles which may affect safety, must be suitably trained to fulfil those roles.
- **LC 12 – Duly Authorised and Other Suitably Qualified and Experienced Persons.** The licensee shall make and implement adequate arrangements to ensure that only suitably qualified and experienced persons perform any duties which may affect the safety of operations on the site. Persons fulfilling Design Authority or Responsible Designer roles, as roles which may affect the safety of operations, must be suitably qualified and experienced to fulfil those roles.
- **LC 36 – Organisational Capability.** The licensee shall provide and maintain adequate human resources to ensure the safe operation of the licensed site. The licensee shall also make and implement adequate arrangements to control any change to its organisational structure or resources which may affect safety. The Design Authority and Intelligent Customer capability should be an integral part of a licensee’s nuclear baseline and any changes to that capability should be assessed for safety significance.

4. RELATIONSHIP TO SAPS, WENRA REFERENCE LEVELS AND IAEA SAFETY STANDARDS

Safety Assessment Principles (SAPs)

4.1 The Safety Assessment Principles for Nuclear Facilities (2014 Edition, Revision 0) provide a framework to guide regulatory decision making in the nuclear permissioning process. It is supported by Technical Assessment Guides (TAGs) which further aid the decision-making process. The following principles are of particular relevance to this Technical Assessment Guide:

- 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 affect safety to be informed, rational, objective, transparent and prudent;

- MS.4. Learning. Identifies the need for lessons learned from internal and external sources to continually improve leadership, organisational capability, the management system, safety decision making and safety performance.

Technical Assessment Guides (TAGs)

4.2 The following Technical Assessment Guides are applicable to this TAG:

- NS-TAST-GD-048 – Organisational Capability
This TAG 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 organisation structure or resources which may affect safety.
- NS-TAST-GD-049 – Licensee Core and Intelligent Customer Capabilities
This TAG sets out 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.
- NS-TAST-GD-072 – Function and Content of a Safety Management Prospectus
Element 7 of this TAG expects a licensee to understand its processes and plant, and to ensure that knowledge is captured and managed.
- NS-TAST-GD-079 – Licensee Design Authority Capability
This TAG sets out the broad principles which underpin ONR's expectations of a licensee's arrangements to provide and maintain an adequate Design Authority capability.

Licensing of Nuclear Installations (ONR 2015)

- 4.3 'Licensing Nuclear Installations' sets out ONR's expectations of a licensee's nuclear baseline as a demonstration that the licensee has suitable and sufficient organisation structures, staffing and competences in place to effectively and reliably carry out those activities which could impact on nuclear safety.
- 4.4 It also sets out ONR's expectation that the organisation and management structure set out in the nuclear baseline will not be static and that it should evolve as the licensee's organisation develops.

WENRA Reactor Safety Reference Levels

- 4.5 This TAG is consistent with the 2014 publication of the WENRA Safety Reference Levels for Existing Reactors - Issue B. It deals with organisational issues and the following paragraphs are key points which the Nuclear Baseline addresses:
- Para B1.1 addresses a justified organisation "The organisational structure for safe and reliable operation of the plant, and for ensuring an appropriate response in emergencies, shall be justified and documented."
 - Para B1.2 requires management of change: "The adequacy of the organisational structure, for its purposes according to B1.1, shall be assessed when organisational changes are made which might be significant for safety."
 - Para B3.1 states that a resource assessment for the organisational structure is needed. "The required number of staff for safe operation, and their competence, shall be analysed in a systematic and documented way".
 - Para B3.5 addresses employee/contractor resource balance: "The licensee shall always have in house, sufficient competent staff to understand the

licensing basis of the plant (e.g. 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”.

- Para B3.6 addresses the intelligent customer role: “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”.

IAEA Safety Standards

4.6 The IAEA Safety Standards (Requirements and Guides) are the benchmark for the SAPs and are recognised by ONR as relevant good practice. They should therefore be consulted, where relevant, by the Inspector.

4.7 Fundamental Safety Principle Number 1 states:

The prime responsibility for safety must rest with the person or organization responsible for facilities and activities that give rise to radiation risks.

This principle cites the responsibility of the licensee for safety throughout the lifecycle of a facility or activity. It affirms the licensee’s responsibility for establishing and maintaining the right skills and competences.

4.8 In addition IAEA Safety Guide NS-G-2.4 “The Operating Organization for Nuclear Power Plants” includes some elements that are embodied in the Nuclear Baseline or Safety Management Prospectus as a means of justifying and describing the organisation.

5. ADVICE TO INSPECTORS

Purpose of a Nuclear Baseline

5.1 The principal purpose of the Nuclear Baseline (NB) is to provide a demonstration that the licensee has suitable and sufficient organisational structures, staffing and competences in place to effectively and reliably carry out those activities which could impact on nuclear safety.

5.2 The licensee needs to show that it is able to maintain nuclear safety, remain in control of activities that could impact on nuclear safety under all foreseeable circumstances throughout the life cycle of the facility, and remain legally compliant. This should not be a significant additional burden to the licensee, inasmuch as any organisation needs to know what resources, competencies and processes it needs to have in place to operate its business.

5.3 A second, important purpose is to provide a clear description of the currently intended staffing levels as a reference point or ‘baseline’ against which the licensee can assess the potential impact upon nuclear safety of proposed organisational changes.

5.4 In preparing its NB, the licensee should therefore consider all activities which have the potential to impact upon nuclear safety, i.e. those activities with a positive impact and those which, if inadequately conceived or executed, could lead to an immediate or latent (direct but not immediate) detriment to nuclear safety. This includes, for example, the governance of nuclear safety, Intelligent Customer capability and drafting of safety related documents, as well as frontline work. It should also include roles which have a positive contribution to nuclear safety.

5.5 The licensee should be able to show that it understands the nuclear safety roles that need to be delivered, and that these roles will be carried out by suitable and sufficient competent resource. It is not sufficient just to show that all roles are ‘covered’, but that

those individuals in post can realistically carry these roles out to the required standard and capacity.

- 5.6 Licensees may derive their NBs in different ways, but there are some broad principles which underpin ONR's expectations of a licensee's NB in the following sections of this TAG.

Nuclear Baseline Principles

1. The NB should consider the delivery and oversight of all activities which have the potential to impact upon nuclear safety. This includes activities with a positive impact and those which, if inadequately conceived or executed, could lead to an immediate or latent detriment to nuclear safety;
2. The NB should address the requirements of steady state conditions, periods of change and potential emergency situations at the current phase of the licensed facility's life cycle;
3. The NB should demonstrate that the licensee's organisation has sufficient staff and competencies to discharge its responsibilities for delivery and oversight of nuclear safety under the nuclear site licence;
4. The licensee must demonstrate that it remains in control of nuclear safety. The governance of nuclear safety and Intelligent Customer capability are an intrinsic part of this demonstration;
5. Contract staff should appear as part of the NB resource when they are embedded within the licensee's organisation or meet the criteria for holding Intelligent Customer roles on behalf of the licensee;
6. The licensee should have arrangements in place to manage contract staff who do not meet the criteria for inclusion in the NB, and in these cases the NB should include those employees who discharge the associated Intelligent Customer functions;
7. Licensees should develop a set of Nuclear Baseline Indicators that provide evidence that the NB has the right organisation, staffing levels and competences and that it is being managed effectively;
8. The Licensee should have in place a process through which the NB is derived and managed;
9. The NB should be maintained as a living document and provide an accurate, current reference point against which nuclear safety implications of proposed modifications to staffing levels/structures, workloads, and changed competence requirements can be assessed, in accordance with the licensee's arrangements made under LC 36.

Nuclear Baseline Methodology

Principles 1 and 2

The NB should consider the delivery and oversight of all activities which have the potential to impact upon nuclear safety. This includes activities with a positive impact and those which, if inadequately conceived or executed, could lead to an immediate or latent detriment to nuclear safety.

The NB should address the requirements of steady state conditions, periods of change and potential emergency situations at the current phase of the licensed facility's life cycle.

- 5.7 The NB should be an evidence-based demonstration that the licensee has an organisational structure, staffing levels and competencies in place that enable it to maintain, and remain in control of, nuclear safety throughout the full range of activities for which it is licensed.

- 5.8 This includes all activities with a positive impact and those which, if inadequately conceived or executed, could lead to an immediate or latent (direct but not immediate) detriment to nuclear safety, including showing that all the safety related roles set out in the Safety Management Prospectus are adequately populated.
- 5.9 The NB should not be restricted to those roles set out in the site's minimum staffing arrangements nor those which the licensee has identified as being necessary to maintain the facility in a quiescent shutdown state. It should reflect the roles needed to carry out the full range of activities for which the site is licensed, including normal operations, decommissioning projects, maintenance, examination and testing, emergency response etc. The governance of nuclear safety, Intelligent Customer and Design Authority capabilities are an intrinsic part of this demonstration.
- 5.10 The licensee should put in place processes through which it identifies the roles that should be included in the NB. These processes should be such that they provide for the identification of roles which are related to nuclear safety and licence condition compliance. For example, they should include roles which involve:
- Carrying out or supporting operations as defined in the Nuclear Site Licence (LC 1);
 - The design and manufacture of nuclear safety related plant and equipment;
 - The management, control and supervision of processes and people which maintain licence compliance;
 - Contributing to the preparation of the nuclear safety case and advising on modern safety standards, including Design Authority responsibilities;
 - Responding to nuclear incidents and emergencies;
 - Roles carried out by manpower substitutes or agency supplied workers that can impact on nuclear safety;
 - Control and supervision of contractors involved in project based work that can impact on nuclear safety;
 - Oversight of tenant organisations carrying out licensable activities;
 - Governance arrangements for the oversight of nuclear safety.
- 5.11 Roles that should be included in the NB should not be hierarchically determined i.e. they should not purely be a reflection of their responsibilities for making managerial or supervisory decisions; the NB should include all those roles which have the potential to impact upon nuclear safety, both positively and negatively.
- 5.12 It is not appropriate simply to take a managerial position, such as supervisors, as the cut off point beneath which others do not appear in the baseline. People beneath this managerial level may carry out work which has the potential to impact on nuclear safety for example control room staff, craftsmen working on systems/components important to nuclear safety, maintainers of nuclear plant, safety case authors, independent peer assessors etc.
- 5.13 The NB should include roles carried out off-site, such as at corporate headquarters, as well as those on the licensed site.
- 5.14 The NB should identify the licensee's organisation down to the level where no impact on nuclear safety is observed. Drilling down through the organisation until the point at which no further impact on nuclear safety is observed means the NB will have the right depth. For example, maintenance staff may include those working in different areas including electrical, mechanical, C&I etc.

- 5.15 The NB should identify the staffing levels and competencies needed in each of these areas, but need not further distinguish between groups of individuals who carry out the same roles.
- 5.16 Although the licensee may also extend the concept of the NB to manage other parts of its business such as its environmental, conventional safety and commercial activities, these are outside the scope of the NB for ONR's nuclear regulatory purposes.
- 5.17 The Inspector should consider whether or not:
- The licensee has defined the criteria used to identify roles that should be included in the NB;
 - The criteria include all roles that involve the discharge of duties which, if inadequately conceived or executed, could lead to an immediate or latent effect both positive and negative to nuclear safety, including the delivery and oversight of the full range of activities, projects or operations that have this potential, whether directly or indirectly;
 - It is clear to whom the responsibilities of the nuclear site licence, and other key nuclear safety requirements including legal issues such as the IRRs, are allocated. This could include responsibility matrices, organisational charts, role profiles etc. and/or explicit links to the Safety Management Prospectus;
 - The NB reflects the organisational structure detailed in the Safety Management Prospectus;
 - The NB considers relevant off-site activities, including corporate functions, as well as on-site activities;
 - The NB breaks down the organisation into nuclear safety roles to a point at which further re-description does not add value.

Nuclear Baseline Resource Level and Competence

Principle 3

The Nuclear Baseline should demonstrate that the licensee's organisation has sufficient staffing and competencies to discharge its responsibilities for delivery and oversight of nuclear safety under the nuclear site licence.

Resource Level

- 5.18 The NB should include either a description, with rationale, of the staffing levels that the licensee needs to carry out roles that have the potential to impact on nuclear safety, and how this compares to actual staff in post which may be higher, or a description of the levels of staff currently in post with an explanation as to how this is known to be adequate.
- 5.19 For existing, well established organisations this may be simple evidence of adequate operational and safety performance at the stated staffing levels, but should not merely be a statement of the status quo presented without suitable evidence as to why this is considered adequate. Nor should the NB be just the level of resource to maintain the licensed site in a non-operational state, unless that is the licensee's purpose.
- 5.20 The licensee should set out the number of individuals which it needs within its organisation to discharge the nuclear safety roles identified through application of Principles 1 and 2 above. It should be noted that one post-holder may carry out a number of roles, so there is unlikely to be a one-to-one relationship between roles and posts. The licensee should then set out the number of individuals which it has in place to carry out these roles. The licensee should be able to show that the roles are

all covered and that the post holder(s) has sufficient resource available to meet the demands of these roles.

- 5.21 If actual resource levels fall beneath those identified as necessary in the NB i.e. there are gaps between the numbers of staff needed and the numbers in post, nuclear safety may be affected. The licensee should be able to show that it understands where such gaps exist and that it has contingency measures in place to address the potential consequences of any shortfall, and plans to fill the gaps. These plans may involve recruitment or redeployment of staff, reducing or delaying work, or the use of contract resource.
- 5.22 There may be risks to nuclear safety if demands increase without an adequate increase in staffing. There should be arrangements in place to identify and deal with this potential too.
- 5.23 Where contract support is used, this must be overseen by a competent Intelligent Customer capability. The alternative option of addressing resource gaps through reprioritisation of the work programme on the basis of nuclear safety should also be explicitly defined.
- 5.24 The Inspector should consider whether or not the licensee:
- Has defined, and given a clear rationale for, the number of individuals required for each NB post/role, for example does the rationale reflect the full breadth of the licensee's activities and does it take consideration of the licensee's work programmes;
 - Has a process in place to monitor the adequacy of its resource levels;
 - Is able to demonstrate that it understands where and why its staffing levels fall short of the levels identified as being necessary to maintain nuclear safety, and can it justify carrying out its activities during with such a shortfall in place;
 - Has put measures in place to address any shortfalls in resource levels;
 - Has management of change arrangements which include a consideration of the impact on changes in resource levels or levels of demand on staff as part of the assessment;
 - Has a contingency plan in place to deal with resource shortfalls.

Competence

- 5.25 LC 12 requires each person who carries out activities which may affect the safety of operations on a nuclear site to be a suitably qualified and experienced person (SQEP). This extends to and includes Director/Board level. For some roles it may also be necessary to designate persons who control and supervise operations which may affect safety as Duly Authorised Persons (DAPs). The licensee should have a competence framework to control, develop and maintain competence.
- 5.26 The NB should demonstrate that the licensee understands its competence needs, and that its staff are competent to discharge roles that impact upon nuclear safety, it is expected that reference will be made to the licensee's competence management system to support the NB. The licensee should be able to extract information which provides it with corporate assurance that its staff are competent to fulfil the nuclear safety roles that they take on.
- 5.27 The responsibilities of the roles that a person undertakes determine whether the role is part of the NB not the attributes of the post/role holder him/herself. If any of the responsibilities held by individual role holders can affect, have oversight or control

nuclear safety then they should be included in the NB. Whilst the NB should have explicit links to the licensee's competence assurance records, for example a 'SQEP register' or similar, it does not have to replicate them.

- 5.28 The licensee should ensure that there is an audit trail for competence requirements for NB roles and evidence that individuals in NB roles meet the required standard.
- 5.29 The licensee should be able to identify and maintain the core 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.
- 5.30 This core capability will include technical (e.g. 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 - see NS-TAST-GD-049.
- 5.31 The NB should include a vulnerability assessment which addresses competence aspects.
- 5.32 The Inspector should consider whether or not:
- The Nuclear Baseline (either directly or through reference to related documentation) provides evidence that the competence needs of Nuclear Baseline roles have been identified;
 - The Nuclear Baseline (either directly or through reference to related documentation) provides evidence that persons carrying out Nuclear Baseline roles meet the competence requirements to hold those roles;
 - The licensee has a mechanism for addressing gaps in competence in existing the Nuclear Baseline organisation and future needs in succession planning;
 - The licensee has put in place and implemented a process to identify all the core competencies it requires, as set out in the Safety Management Prospectus, and captured them in the Nuclear Baseline.

Principle 4

Nuclear Safety Governance, Design Authority and Intelligent Customer capabilities

The licensee must demonstrate that it remains in control of nuclear safety. The governance of nuclear safety and Intelligent Customer capability are an intrinsic part of this demonstration.

- 5.33 Under UK legislation the holder of a nuclear site licence is responsible for nuclear safety on the Licensed Site. Additionally, under Sections 2 and 3 of the Health and Safety at Work Act 1974, the employer is responsible for the health and safety of its employees and others who may be affected by its activities. This overarching requirement is built into the SAPs in Fundamental Principle 1 as follows:

The prime responsibility for safety must rest with the person or organisation responsible for the facilities and activities that give rise to radiation risks.

- 5.34 Nuclear safety governance relates to the competence, arrangements and practices that determine whether the organisation is in control of the nuclear safety of its business in a clear line down from the corporate body that holds the licence. Both the Safety Management Prospectus and the NB have roles to play in demonstrating the organisation's nuclear safety governance capability.

- 5.35 The Safety Management Prospectus should describe the process in place to ensure that the organisation has the capability to be in control of day to day operations and governance of the licensed site. The NB should refer to the statements made in the Safety Management Prospectus and demonstrate that relevant roles are properly identified, and resourced with competent persons. The Health and Safety at Work Act, and the Management of Health and Safety at Work Regulations also require adequate organisational arrangement for implementing policy and preventive and protective measures.
- 5.36 Where a licensee draws on contract staff to supplement its core capability it must ensure that the balance of employees and contract staff does not impede the licensee's ability to discharge its governance responsibilities.
- 5.37 The Inspector should consider whether or not:
- Those roles which have nuclear safety governance responsibilities have been clearly identified in the NB;
 - There are mechanisms for determining those roles contributing to nuclear safety governance that may be held by contract staff;
 - Succession planning and resource strategies take account of the nuclear safety governance, Design Authority (DA) and Intelligent Customer (IC) capabilities;
 - The NB and supporting documentation demonstrate that there are enough direct employees of the Licensee to retain the nuclear safety governance capability at the right level without degradation as described in the Safety Management Prospectus;
- 5.38 The Licensee is responsible for demonstrating, through the NB, that it has enough people with the right competences to discharge its legal duties. Where this involves the support of others outside its own organisation then the licensee must demonstrate that it is and remains an IC for these skills and services.
- 5.39 Licensees should assess the roles in the NB which undertake an IC or DA function in line with their policy for IC, DA and staffing as described in the Safety Management Prospectus. NS-TAST-GD-049 defines the characteristics and breadth of the IC concept and should be referred to in assessing whether the licensee has an effective IC organisation. NS-TAST-GD-079 defines the principles for a licensee's DA capability and should be referred to when undertaking assessments of a licensee's DA capability.
- 5.40 The licensee should ensure that the breadth and depth of NB assessment includes identification of IC and DA roles providing oversight of contract staff.
- 5.41 The licensee should ensure that the process for the management of change includes an assessment of implications for delivery of the IC and DA capability.
- 5.42 The Inspector should consider whether or not:
- The Nuclear Baseline identifies the IC and DA capability across the breadth of the organisation's business;
 - The IC and DA roles identified match the interfaces described in the Safety Management Prospectus;
 - The IC and DA roles are included in the succession planning arrangements;
 - The Nuclear Baseline and supporting documentation demonstrate that there are enough licensee employees in the licensee organisation to retain the IC and DA capability at the right level without degradation.

The Nuclear Baseline and Contract Staff

Background

- 5.43 Licensees may choose to call upon the support of staff outside their own organisation for a number of reasons including:
- To supplement their own organisational capability in response to planned changes in workload
 - To carry out specific projects
 - Through partnership arrangements
 - To supplement in-house capability for scarce skills.
- 5.44 In determining whether it is appropriate to utilise contractor resource, licensees should ensure the decision making process includes a review of the impact on the NB. This should include the effect on core capability to deliver licence condition compliance.
- 5.45 It should also address the potential for creating an organisation where the balance of roles held by employees and contract staff places an unacceptable risk on the licensee's ability to discharge its IC responsibilities and maintain nuclear safety governance.
- 5.46 Where contractors are used, and their activities have the potential to impact on nuclear safety, they should be considered as part of the NB. ONR recognises that including all such contractors within the NB could make the NB difficult to manage and maintain and potentially compromise its effectiveness. ONR will therefore adopt a pragmatic approach to the treatment of contractors with regard to the NB.
- 5.47 This position is set out in the following two sections.

Contract Staff within the scope of the Nuclear Baseline

Principle 5

Contract staff should appear as part of the NB resource when they are embedded within the licensee's organisation or meet the criteria for holding Intelligent Customer roles on behalf of the licensee.

- 5.48 Contract staff should, for example, appear as part of the NB resource when the conditions of their employment are such that they meet the criteria set out in NS-TAST-GD-049 for working as an IC on the licensee's behalf. Such contractors may have continuing roles within the licensee's organisational structure and, for practical purposes, can be regarded as part of the licensee's staff complement.
- 5.49 The licensee should be able to demonstrate that these individuals are subject to the licensee's processes for competence assurance, line management, discipline, succession planning etc.
- 5.50 The NB should identify where NB roles are held by contractors in order for it to show that it understands where it is vulnerable to loss of contract resource, and to demonstrate that the balance of staff-contractors is suitable.
- 5.51 The Inspector should consider whether or not
- The licensee has included within its NB those contractors who are embedded within its organisation and who carry out necessary functions of the licensees' behalf;
 - The Nuclear Baseline identifies which nuclear safety roles are held by such contractors;

- The number of baseline roles held by non licensee staff kept under review and managed so that the profile is acceptable;
- The licensee has included succession planning and vulnerability analysis for Nuclear Baseline roles held by contract staff.

Contract Staff outside the scope of the Nuclear Baseline

Principle 6

The licensee should have arrangements in place to manage contract staff who do not meet the criteria for inclusion in the NB, and in these cases the NB should include those employees who discharge the associated IC functions.

- 5.52 The licensee may make use of contractors who do not meet the criteria for inclusion within the NB for example contractors utilised on a project basis, and this is likely to be the case for most contractors.
- 5.53 In such cases, it is expected that the contractors will be managed using robust project management arrangements through which the licensee will ensure that the work of the contractors is properly specified, that arrangements to manage the contract are in place, that the contractor uses sufficient numbers of competent people to carry out the work, and that the contractors' work is subject to appropriate levels and forms of scrutiny and supervision.
- 5.54 The project management arrangements, and their application, should provide a demonstration that work which could impact upon nuclear safety is properly organised and resourced by competent persons, as per the expectations of NB roles.
- 5.55 The NB should include those roles which are in place to manage contractors and to provide the licensee's IC, DA and oversight functions. The licensee should make reference to the activities that are carried out by contractors outside the NB, and to the project management arrangements that ensure that the expectations of the NB are met.
- 5.56 The Inspector should consider whether or not:
- The licensee has identified those activities performed by contractors which are outside the criteria for inclusion in the NB which have the potential to impact upon nuclear safety;
 - There are project management arrangements in place for such contracts which demonstrate that the key principles of the NB are met – i.e., that work is adequately organised, resourced and controlled by competent people;
 - The NB includes those IC and control and supervision roles which provide the oversight of contractors carrying out work which has the potential to impact on nuclear safety;
 - The licensee can demonstrate that the range of IC roles is suitable and sufficient to cover the breadth of the contractors' activities.

Justification of the Nuclear Baseline

Nuclear Baseline Indicators

Principle 7

Licensees should develop a set of Nuclear Baseline Indicators that provide evidence that the Nuclear Baseline has the right organisation, staffing levels and competences and that it is being managed effectively.

- 5.57 The NB should demonstrate that the licensee's organisation and its staffing levels and competencies enable it to discharge its nuclear safety responsibilities.
- 5.58 ONR does not expect detailed task analysis to underpin the resource/competence allocation for all activities within the scope of the NB because this would not be practicable (although task analysis may be expected to understand and support some actions claimed within the safety case). ONR places greater emphasis on the use of meaningful performance indicators to monitor the health of the licensee's organisation, staffing levels and competence.
- 5.59 Performance indicators should provide reassurance that nuclear safety roles are being delivered effectively. The indicators should include leading measures of performance prior to potential failure. They should address aspects such as quality and timeliness of work activities that could impact on nuclear safety. It is acceptable for the licensee to use some lagging measures as retrospective learning tools but these should be in addition to leading indicators. Indicators can also be used to monitor vulnerabilities identified in the NB.
- 5.60 In determining appropriate Nuclear Baseline Indicators, licensees should consider the likely outcomes of both positive and inadequate delivery of nuclear safety functions. Whilst the exact nature of the indicators and the types of data available will vary from licensee to licensee the broad areas for performance measurement are likely to remain the same. For example measures of:
- Backlog of work, including maintenance activities,
 - Excessive hours
 - Quality of work output.
- 5.61 This type of information may already be gathered by the licensee in order that it can understand how well its business activities are being delivered. In such circumstances, the NB may therefore provide a draw upon the way in which the information is collected and used to provide confidence that nuclear safety activities are adequately organised and resourced with competent people.
- 5.62 The licensee's indicators should address the following aspects:
- **Complement** – to show that the organisation has enough resource, at the right time and that the NB resource level is in line with programme need, for example demonstration that individuals are not overloaded;
 - **Competence** – to show that it has the right skills and competences to match the need;
 - **Nuclear Safety Achievement** – to show that the NB achieves the goal of maintaining nuclear safety.
- 5.63 The Inspector should consider whether or not:
- The adequacy of the NB demonstrably supported by evidence rather than an assumption that the current organisation is adequate;
 - The licensee has established a set of indicators that demonstrate the adequacy of its organisation, resource and competence to carry out those activities which have the potential to impact on nuclear safety;
 - The licensee has established a process for monitoring the NB indicators at a suitable frequency and ensuring action is taken when appropriate;
 - The indicators are being used to inform judgements on the organisation's capability;

- There is an appropriate emphasis on leading measures of performance;
- The indicators provide a basis for confidence that the licensee's organisation, staffing levels and competencies are suitable and sufficient to effectively deliver nuclear safety.

Vulnerability Analysis

- 5.64 The licensee should undertake some form of analysis to assess the vulnerability of its resource and competence profile. This should identify where it may be vulnerable due to a potential shortage of competent resource such as singleton roles, where staff hold multiple and potentially conflicting roles or where NB roles are held by contractors etc. ONR expects the licensee to take account of its demographics in this assessment, such that the implications of impending retirements are considered.
- 5.65 The licensee should be able to show that, where vulnerabilities are identified, it has succession plans and, where appropriate, contingency arrangements, in place.
- 5.66 The Inspector should consider whether or not:
- The licensee has undertaken some form of vulnerability analysis of the resource profile;
 - The vulnerability analysis has identified where the licensee is vulnerable to loss of role-holders with nuclear safety responsibilities, such as singletons;
 - Contingency arrangements have been put in place where vulnerabilities have been identified are succession plans and, where appropriate;
 - A forward action programme exists where mitigating actions have been identified.

The Nuclear Baseline Process

Principle 8

The Licensee should have in place a process through which the NB is derived and managed.

- 5.67 The licensee should be able clearly to demonstrate that it has arrangements in place to derive and maintain an organisation, staffing levels and competences which enable it to understand, deliver and oversee activities which have the potential to impact on nuclear safety. The arrangements should show:
- How the licensee determines the nuclear safety functions that it needs to discharge;
 - How the licensee identifies the staffing levels and competencies required to deliver these nuclear safety functions
 - That the licensee's organisation, staffing levels and competencies are adequate to meet these needs. This should include sufficient resource to work safely and to deliver an appropriate work programme
 - That the licensee maintains effective IC and supervisory capabilities to oversee the work of contractors
 - That an appropriate vulnerability analysis is carried out which highlights where the licensee is vulnerable to loss of resource or capability – for example, where it relies upon singleton expertise or a limited pool of in-house or contract resource.
 - That succession plans are put in place where appropriate.

- 5.68 Where the NB addresses the above elements, it is likely to draw upon current processes within the wider business management system such as competence management, project management and resource planning. The NB may therefore not exist as a single stand-alone document.
- 5.69 The NB is likely to include statements setting out the elements of the NB and showing how these elements are addressed. This might include references to the application of a number of business processes which can be drawn upon to demonstrate how the expectations of the NB are being delivered.
- 5.70 The NB should draw together the findings of these processes in order that an overview of the licensee's organisational adequacy can be established. This should include plans to address gaps and weaknesses where they are identified.
- 5.71 ONR expects that the licensee's HR, project planning and other processes to explicitly identify NB roles in order that they are clearly understood and that proposals to change them are flagged up for consideration as part of the licensee's LC 36 arrangements.
- 5.72 ONR expects that the licensee will have in place corporate processes to make its senior management aware of the status of the NB in order that they are able to take steps to ensure that the organisation is suitably structured and resourced to deliver continued nuclear safety.
- 5.73 Where a Licensee has projects and programmes e.g. new nuclear build, which require changing staffing levels, competencies and organisational structures, ONR recognises that a single, fixed, NB may not be suitable. In such circumstances, ONR would expect the licensee to acknowledge the need to link its work programme with its staffing levels and competence needs at each stage such that a valid NB is available to underpin its work at any time.
- 5.74 Prior to starting a new phase in the work programme it may be appropriate to have 'hold points' to confirm that suitable and sufficient skills and competences are in place for the tasks ahead. This could be achieved through an overall NB assessment for all stages, linked to any project manpower plans, or through a series of phased NB's reflecting changes to structures, resources and competencies managed through the licensee's LC 36 arrangements. This type of logic could be applied as part of the work approval arrangements to instances where there is a potential change in the NB organisation, resource or competence needs.
- 5.75 The Inspector should consider whether or not:
- The licensee has adequate arrangements for defining, producing and maintaining a NB;
 - The NB clearly describes the philosophy and methodology for how it is constructed and how assessments regarding the need for nuclear safety roles, and the adequacy of their delivery, are carried out;
 - The licensee has a process for keeping the baseline up to date and undertaking period reviews;
 - The NB provides a 'route map' to show those parts of the licensee's management system which are referenced by the NB;
 - The NB enables conclusions to be drawn from the referenced business processes regarding the condition and adequacy of the elements identified in this TAG;
 - The licensee's management system processes ensure that the its senior management are aware of the status of the NB in order that they can continue

to ensure that the organisation is suitably structured and resourced to deliver continued nuclear safety;

- NB roles have been explicitly identified so that they are clearly understood, and that proposals to change NB roles are being considered under the licensee's LC 36 arrangements;
- There is evidence that the NB has been integrated into the licensee's management system.

Living Baseline

Principle 9

The NB should be maintained as a living document and provide an accurate, current reference point against which nuclear safety implications of proposed modifications to staffing levels/structures, workloads, and changed competence requirements can be assessed, in accordance with the licensee's arrangements made under LC 36.

- 5.76 The Nuclear Baseline should be updated as changes are made to the organisational structure, staffing levels and competence requirements using the licensee's arrangements for management of change under LC36. Where the licensee uses a database as part of its position management system, changes to the NB may be made concurrent with organisational changes such that the NB remains live. In other circumstances, the licensee should put in place a process periodically to review and consolidate changes to the NB – for example, on an annual basis, and generally no less than that unless the company has seen very few or no changes. In this way, the NB continues to reflect the state of the licensee's organisation.
- 5.77 Licensees should ensure that their management systems ensure that the Baseline is referred to and if necessary reviewed when considering changes brought about by factors such as:
- Applications for a new licence or change in parent body organisation;
 - Step changes in project requirements as projects move from one part of the programme to the next or change in lifecycle;
 - Proposed staffing change, for example the use of contract support in Nuclear Baseline roles previously held by licensee employees;
 - Changes in the scope of work;
 - Changes in the competence of baseline post holders or training and competence needs of the role;
 - Cumulative effects of low category changes.
- 5.78 It should be noted that replacing one post holder with another post holder who meets the competence criteria need not constitute a trigger for the application of LC36 arrangements, and consequent NB review except in the case where the replacement is a contractor.
- 5.79 Direct like-for-like replacement should be addressed though the arrangements made under LC 12. Licensees can use their LC 36 arrangements as a flexible risk assessment tool for major staffing changes such as change in Parent Body Organisation arising from a competition process.
- 5.80 Licensees should ensure that NB improvement actions are included in work plans to address gaps in capability and deliver the NB to meet future needs.
- 5.81 The Inspector should consider whether or not:

- The licensee have a process in place to assure the continued currency, and periodic review, of the NB;
- There is evidence that the NB is maintained and up to date reflecting the current organisation;
- There are triggers for NB review part of the licensee's management of change process;
- The licensee has arrangements to confirm that the NB needs are met prior to starting a new phase with differing NB requirements;
- The NB provides an appropriate reference point for the licensee's management of change arrangements made under LC 36.