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# Environment, Safety, Security and Safeguards Case Version 2, Tier 1, Chapter 17: Management of E3S and Quality Assurance





## **Record of Change**

Date	Revision Number	Status	Reason for Change
March 2023	1	lssue	First issue of E3S Case
		lssue	Incorporates revised approaches defined at Reference Design 7, aligned to Design Reference Point (DRP) 1. The changes in this revision include:
			Incorporation of the updated arrangements for development and management of the E3S Case.
January 2024	2		Updates to Integrated Management System and supporting policies, manuals and processes.
			Information on the adoption of Teamcenter.
			Information on the control of the DRP.Also, minor template/editorial updates for overall E3S Case consistency."
	3	3 Issue	Updated to correct revision history status at issue 2. Chapter changes include:
			• Robust explanation of the Security Group function (section 17.2.1)
May 2024			<ul> <li>Clarification of business competency arrangements for secondees (section 17.2.2.2)</li> </ul>
			• Explanation of how Continuous Improvement will be deployed as the business matures (section 17.4.1)
			• Confirmation that right-first time measures are in place and utilised across the business (section 17.4.2)
			• Reference to MSQA commitments of claims made in the chapter (section 17.6.3)
			<ul> <li>Further updates to the chapter include: Addition of ISO19443 2018 and ISO19650- 2:2018 (section 17.0.2)</li> </ul>





Date	Revision Number	Status	Reason for Change
			Objective and Principles and RSR Generic Developed Principles (section 17.0.4)
			<ul> <li>Updated IMS structure (section 17.1.3)</li> </ul>
			<ul> <li>Update HSEQ Organisation Structure – new role titles included (section Figure 17.0-1: HSEQ Organisation</li> </ul>
			• Additional detail of how PMO interfaces with GDA delivery arrangements (section 17.2.6.1)
			Also minor template/editorial updates for overall E3S Case consistency.



## **Executive Summary**

This report presents Chapter 17 of the Rolls-Royce Small Modular Reactor (RR SMR) Environment, Safety, Security and Safeguards (E3S) Case, which describes the overarching summary of the management and organisational arrangements related to delivery of the design and E3S Case for RR SMR.

Version 2 of the generic E3S Case is developed to reflect the Reference Design 7 (RD7) design, corresponding to design reference point 1 (DRP1) for the Generic Design Assessment (GDA).

This chapter demonstrates that suitable, appropriate, and established arrangements are in place in relation to the management of E3S and quality assurance which enable appropriate standards in support of E3S and quality to be applied throughout all phases of the reactor lifecycle.

The arrangements, including the Integrated Management System (IMS) documents, policies, manuals, procedures and supporting systems have been developed, deployed and evaluated in line with the delivery of the design and E3S case.

The IMS has been certified to International Organization for Standardization (ISO) Quality Management ISO9001:2015 in 2023. Rolls-Royce SMR Limited are currently working towards being externally certificated to ISO14001:2015 Environmental Management, ISO45001:2018 Occupational Health and Safety Management Systems and ISO27001: 2022 Information Security Standard in 2024.

The arrangements continue to evolve and improve, through building in learning from experience, operating experience, results and feedback from performance measures, assurance activities, internal and external evaluation, assessments and reviews. Changes to arrangements are managed through appropriate change control governance arrangements.



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## 17.0 Introduction to Chapter

## 17.0.1 Introduction

Chapter 17 of the Rolls-Royce Small Modular Reactor (RR SMR) generic Environment, Safety, Security and Safeguards (E3S) Case presents the overarching summary of management and organisational arrangements related to delivery of the design and E3S Case.

This chapter demonstrates that suitable and established arrangements are in place in relation to the management of E3S and quality assurance, which ensures appropriate standards in support of E3S, and quality are applied throughout all phases of the reactor lifecycle.

## 17.0.2 Scope and Maturity

This chapter details the management arrangements required to support the development of the RR SMR at Reference Design 7 (RD7) corresponding to design reference point 1 (DRP 1) for the generic design assessment (GDA). The arrangements are demonstrated at an appropriate level required for the current maturity of the design.

This chapter covers the generic arrangements for:

- Processes and systems are in place and established, to ensure environment, safety (both nuclear and conventional health and safety), security, safeguards, and quality assurance requirements
- Quality management of the design and E3S Case production
- Control of the design and E3S Case

The arrangements presented in this revision of the E3S Case cover the design and build aspect of the project lifecycle and apply to the whole business. This includes the E3S Case development as well as specific arrangements in place to support the delivery of the GDA project.

Arrangements for future lifecycle stages beyond design and build will be captured in future revisions of the E3S Case, which will evolve as the design matures as described in [1]. The development of these arrangements will be the responsibility of the future dutyholder / licensee / permit holder, this is captured in the following commitment:

**Commitment on Future Dutyholder/Licensee/Permit Holder C17.1**: The future dutyholder / licensee / permit holder shall develop the arrangements for management of E3S and Quality Assurance following the design and build phase of the design lifecycle.

Rolls-Royce SMR Limited are certified to the following:

- International Organization for Standardization (ISO) Quality Management ISO9001:2015 [2] ISO14001:2015 Environmental Management [3]
- ISO45001:2018 Occupational Health and Safety Management Systems [4]

Rolls-Royce SMR Limited are currently working towards certification to ISO27001: 2022 Information Security Standard [5] ISO19443: 2018 Quality management systems [6] and ISO 19650 – 2: 2018 Building Information Modelling (BIM) [7].



## 17.0.3 Claims, Arguments and Evidence Route Map

The overall approach to Claims, Arguments, Evidence (CAE) and the set of fundamental E3S claims to achieve the E3S fundamental objective are described in E3S Case Tier 1 Chapter 1: Introduction [1]. The associated top-level chapter claim for E3S Case Tier 1 Chapter 17: Management for E3S and Quality Assurance is:

## Claim 17: The Rolls-Royce SMR Limited organisation has suitable arrangements and processes to achieve a strong organisational E3S culture and demonstrate adequate quality assurance.

A decomposition of this claim into sub-claims, and mapping to the relevant Tier 2 and Tier 3 information containing the detailed arguments and evidence, is presented in the E3S Case Route Map [8]. Given the evolving nature of the E3S Case alongside the maturing design, the underpinning arguments and evidence may still be developed in future design stages; the trajectory of this information, where possible, is also illustrated in the route map, which aligns the anticipated arguments and evidence to future issues of the generic E3S Case (subject to ongoing planning).

A proportionate summary of the arguments and evidence from lower tier information, available at the current design stage, is presented within this chapter. A mapping of the claims to the corresponding sections that summarise the arguments and/or evidence is provided in Appendix A (Section 17.8).

# 17.0.4 Applicable Codes, Standards, Best Practice and Recognised Guidance

The Rolls-Royce SMR Limited management arrangements are being developed to ensure compliance with relevant codes, standards, best practices, and recognised guidance, to ensure adequate arrangements for management of E3S and quality assurance, noting this list is not exhaustive:

- ISO 9001:2015 Quality Management Standard [2]
- International Atomic Energy Agency (IAEA) GSR Part 2: Leadership and Management for Safety [9]
- ISO 14001:2015 Environmental Management Standard [3]
- ISO 45001:2018 Occupational Health and Safety Management Systems Standard [4]
- ISO27001: 2022 Information Security Standard [5]
- ISO 19443: 2018 Quality management systems [6]
- ISO 19650 2: 2018 Building Information Modelling (BMI) [7]
- American Society of Mechanical Engineers (ASME) ASME NQA-1: Quality Assurance Arrangements for Nuclear Facilities [10]
- Environment Register based internally within Rolls Royce SMR Smart Reporting System
- Management and leadership for the environment: generic developed principles GOV.UK (www.gov.uk) [11]
- Radioactive Substance Regulation (RSR): Objective and Principles and RSR Generic
   Developed Principles [12]
- Office for Nuclear Regulation (ONR) Safety Assessment Principles (SAPs) [13] and Technical Assessment Guides [14].



## 17.1 General Characteristics of the Management System

## 17.1.1 Business Vision

Rolls-Royce SMR Limited has a vision statement 'To provide clean, affordable energy for all' which is supported by a number of strategic priorities, enabling programmes, functions, values and behaviours.

The Rolls-Royce SMR Limited values and behaviours support the embedding of behavioural expectations into a sustainable Rolls-Royce SMR Limited culture (SMaRT Culture) for everyone (see Figure 17.1-1).

Our values and behaviours underpin who we are as an organisation. They act as a guide to enable us to build upon our strong culture that also supports a healthy nuclear safety culture.

Through displaying behaviours which align with our values, we can positively bring them to life and ensure they act as a guiderail to drive us forward and ensure we make the right decisions individually, and as a team.



Figure 17.1-1: Rolls-Royce SMR Values and Behaviours



## 17.1.2 Rolls-Royce SMR Limited Policies

Rolls-Royce SMR Limited has developed and deployed a strategic set of mandated Rolls-Royce SMR Limited policies.

Rolls-Royce SMR Limited policies define why the policy topic is important and the appropriate organisation's values, code of conduct, leadership commitment, intent, and supporting principles and expectations we place on all our people in order to maintain consistent standards across the organisation when carrying out particular activities in our day-to-day work.

All the policies are mandatory and are understood and followed by everyone at Rolls-Royce SMR Limited. These are deployed through staff inductions, initial and annual refresher mandatory training, staff objectives and appraisals, communications, staff awareness and coaching sessions.

The Rolls-Royce SMR Limited policies continue to develop and reviewed to capture and reflect the business values, leadership commitments, and nuclear industry and stakeholder expectations, using Relevant Good Practice (RGP) that's appropriate for the Rolls-Royce SMR Limited business.

The development and deployment of these policies is integrated and part of the Integrated Management System (IMS) development, deployment, and continuous improvement programme. Policies are controlled documents that reside within the Integrated Management System and are managed, governed and change controlled accordingly. Each has a Policy Owner (Executive Leadership Team), supported by a Policy Owner Delegate (if appropriate) and Policy Lead.

The Health, Safety and Environment Policy [15] sets out the business commitment to take care of the environment as well as the safety, health and wellbeing of our colleagues and those who work with Rolls-Royce SMR Limited. The policy defines key responsibilities for implementation including accountability, high standards and compliance. The policy sets out that Rolls-Royce SMR Limited expect the highest standards of behaviour to protect their own and others, health and safety, and the environment in which Rolls-Royce SMR Limited operates.

The Quality Policy [16] sets out the importance of robust quality that is delivered through processes, to ensure that products and services, including those of suppliers, conform to specification. The policy defines key responsibilities including the importance of understanding individual roles and responsibilities in relation to quality and to participate in the deployment and implementation of the policies, processes, and quality programmes. It highlights the need to identify areas for improvement and learning opportunities to drive towards best practice and business excellence. This is supported by the identification of risks and encouragement of challenge in the processes.

The Nuclear Safety Culture Policy [17] highlights the importance of a nuclear safety culture to support the creation of an environment where concerns can be raised, continuous improvement promoted, problems identified and resolved and working processes are planned and controlled.

The Sustainability Policy [18] highlights the importance of being a sustainable business for the purposes of safeguarding the environment and resources, supporting people and the communities in which Rolls-Royce SMR Limited operate and future generations, whilst delivering value for investors and customers. It sets out the aim to develop a long-standing sustainable business through alignment with the United Nations Sustainable Development Goals [19], embedding sustainability in decision making throughout the organisation, measuring ongoing and continuous improvement and ensuring that the approach is applied to future business development.

The Product Safety Policy [20] highlights the importance of eliminating, as far as reasonably practicable, the risk of delivering an unsafe nuclear power station in order to protect the wellbeing of the communities and environment in which our products operate. This encompasses all aspects of the design, manufacture, assembly and commissioning and, to the extent within our control the operation, maintenance and decommissioning. It sets out responsibilities and commitments to safety



with key principles including Leadership accountability, robust product safety standards, safety awareness and competence, safe conforming products and the Identification and evaluate safety issues.

The Speak Up Policy [21] highlights the importance of having an environment where employees and stakeholders feel able to speak up when they have concerns without fear of retaliation. It is vital that all employees and stakeholders are able to speak up when they have questions or suspect any breaches of the Rolls-Royce SMR Limited policies or unethical behaviour. It provides the commitment that all matters raised will be appropriately investigated.

The Security Policy [22] highlights the importance of maintaining security of our business, people, customers, and partners. It provides the key objectives and commitment to safeguarding our assets, through clearly defined requirements, objectives and enabling programme, promoting a security risk-aware culture, staff and supply chain roles, responsibilities, awareness and training, responding to incidents and driving continuous improvement.

The Compliance Culture Policy [23] highlights the commitment to conducting business in a responsible, ethical and compliant manner. It highlights the importance of the company values and behaviours, the consequences of a breach, and that a compliance culture is fundamental to our success part of how we work. Rolls-Royce SMR Limited is subject to a range of UK and international laws and regulations governing topics including Ethics & Compliance, Data Privacy, Export Control and Sanctions Compliance, Corporate Governance and Intellectual Property that set out expected standards of conduct. The policy set out the principles to support a compliance culture in meeting these standards, and to speak up and ask, if unsure.

The Enterprise Risk Management Policy highlights the importance embedding risk management into its culture and into the behaviour of all people involved in the management, operation, development, and delivery of its objectives. The policy identifies key objectives, supporting principles, responsibilities for staff at all levels of the organisation.

Through these policies, Rolls-Royce SMR Limited has committed to engaging, communicating clearly and openly with all stakeholders and driving continual improvement and innovation through appropriate targets and goals.

Rolls-Royce SMR Limited policies welcome and encourage challenge along with the requirement to report concerns, speak up and ask, if unsure.

These policies demonstrate Rolls-Royce SMR Limited commitment to support E3S, quality, nuclear safety culture and continual improvement.

## 17.1.3 Integrated Management System (IMS)

Rolls-Royce SMR Limited has developed and established an Integrated Management System (IMS) to enable the business to fulfil its responsibility for safe delivery and the effective management of its business.

The IMS is structured to enable the business values, requirements, and expectations to be embedded through a Governance, Risk and Compliance Framework [24], Code of Conduct and supporting policies, manuals, value streams, processes and procedures, standards, templates and guidance. (Figure 17.1-2).

The IMS has been developed to comply with applicable external legal, regulatory and nuclear industry standard requirements and expectations, including shared learning from guidance and best practices listed in Section 17.0.4 above.

The IMS and arrangements have been externally certified to ISO 9001 - Quality Management Standard in 2023 and continue to be assessed as part of the ISO certification programme.



Figure 17.1-2: Rolls-Royce SMR Limited IMS Framework

The IMS Process Landscape provides a simple and agile framework of end-to-end value streams, integrated management and functional supporting and enabling procedures, processes and guidance to deliver Rolls-Royce SMR Limited vision, strategy and objectives and provides a foundation for business excellence.

The IMS Process Hierarchy (Figure 17.1-3) is composed of four levels:

- Level 1 and 2 Value streams and processes describing 'what' is required
- Level 3 and 4 Process steps and supporting procedures describing the 'how'.



Figure 17.1-3: Rolls-Royce SMR Limited Business Process Landscape

Responsibilities associated with the management system are defined in the IMS Manual [25], and subsequently the Health, Safety, Security, Environment and Culture Manual [26], the Regulatory Affairs Functional Manual [27] and the Security Manual [28].



For Rolls-Royce SMR Limited to deliver its vision and consistently meet customer, regulatory and stakeholder expectations and needs, a set of high-level IMS objectives have been defined and are documented in the IMS Manual [25].

These objectives are reviewed on a continual basis to ensure the IMS meets internal and external requirements and expectations.

Embedding of key activities into the IMS is achieved by a set of defined principles. A principle is a fundamental statement that serves as the foundation for the management system.

Effectiveness of the IMS is carried out through the Rolls-Royce SMR Limited assurance arrangements (Section 17.2.6) and through periodic business reviews as required by Rolls-Royce SMR Limited process M3.1.2-1 - Define Management System requirements [29], which are conducted to assess and evaluate business performance, effectiveness of processes, risks, issues and opportunities.

In relation to the GDA, a Quality Management Plan [30] is in place which captures specific quality arrangements for the project. For the majority, business wide processes and procedures are applicable however there are several project specific requirements which are captured in a series of GDA Operating Instructions.

The IMS and its supporting arrangements will be updated as the business develops and matures. Any changes to these arrangements will be captured in future revisions of this E3S Case as appropriate.

Development of the Design and E3S Case is carried out in line with the IMS Level 3 Process C3 – Develop Solution, and its supporting processes and procedures. Further details are captured in Section 17.3 of this chapter.



## 17.2 Specific Elements of the Management System

## 17.2.1 Organisation Arrangements

{REDACTED}

#### Figure 17.2-1: Rolls-Royce SMR Limited Team Structure

The Rolls-Royce SMR Limited Board (RR SMR Board), which includes representatives from Rolls-Royce plc as well as other shareholder representation, are ultimately accountable for the management system, ensuring that it is established, implemented, assessed, and improved, and is effective for meeting the business objectives.

The Rolls-Royce SMR Limited Executive Leadership Team (ELT) are accountable and responsible for the day-to-day management and governance of their delivery programmes, or enabling function, setting strategic aims, providing leadership to put these into effect, and supervising the management of the business to ensure effective implementation of business strategic vision, mission and values. These responsibilities are operationally discharged through setting policies, delegation of authority, organisational and management structures, committees and the IMS arrangements described in this document.

The Rolls-Royce SMR Limited team structure responsibilities are:

Strategy and Business Development team are responsible for the growth of the Rolls-Royce SMR Limited business covering our market strategies and prioritisation; our customer relationship development to generate a differentiated position for RR SMR; and the creation of strategic partnerships to bring capability, market access and funding.

Corporate and Government Affairs function is responsible for all government affairs, communications, policy and engagement with investors in our business as well as safeguarding our brand publicly. One of the core focuses of Corporate Affairs is to publicly build and maintain the reputation of our business with consumers, Government and wider industry.

The Finance function is responsible for the management of financial activities for Rolls-Royce SMR Limited, ensuring the financial requirements of all key stakeholders are adhered to. The Chief Finance Officer is also responsible for the Information Technology (IT), Programme Management Office (PMO) and the property teams, who all focused on ensuring we enable the business with the right systems and processes to drive business performance.

Commercial Team support our key priorities, delivering our orders and establishing the commercial relationships we hold with key partners and suppliers. The Commercial Team work collaboratively in the Customer facing and Supply Chain space as well as closely with our General Counsel Colleagues, bringing the business together and providing commercial oversight to our operations.

Engineering function is responsible for all aspects of engineering capability and delivery across the RR SMR enterprise. This includes the role of Chief Engineer, with full accountability for the engineering design, verification, validation and delivery programmes, acceptance and governance of all engineering solutions and definitions, as part of the integrated power station solution and all matters related to ensuring product safety.

Operations team comprise of Manufacturing, Supply chain, Planning, Logistics, Operational Quality and Manufacturing Engineering with a focus on delivery readiness, creating a value chain with both internal (factories), external supply chain, along with digital and technology enabled installation and assembly of our RR SMR Power Station to schedule, cost and licensee arrangements.



Internal Audit function is responsible for the provision of an internal audit service to the business supported by a small team of auditors. Internal Audit provides an independent assurance and consultancy service intended to drive improvements in organisational effectiveness, with a focus on

risk management, the organisation's control environment and governance arrangements.

People function includes responsibility for the management of our employee relations through business partnering, engagement and organisational effectiveness, ED&I activities and talent management. The function is also responsible for Learning and Skills development, strategic workforce planning and our Reward and Recognition.

General Counsel function ensures that we conduct business in a responsible, ethical and compliant manner. This includes responsibility for our business-wide legal and compliance function including Corporate Governance, Data, Privacy, Export Control, Ethics & Compliance and Intellectual Property.

The Safety and Regulatory Affairs Function is responsible for the business Health, Safety, Environment, Sustainability and Quality (HSEQ), Security, Regulatory Affairs and Nuclear Assurance. These functions ensure that Rolls-Royce SMR Limited integrated management systems and arrangements keep our people and the environment safe and secure and that we are compliant with the associated regulatory requirements.

The Safety and Regulatory Affairs Function Directorate includes the following groups and functions:

Programme Management Office provides project and programme management services to the Regulatory Affairs Group, collating updates and progress reports for the wider Rolls-Royce SMR Limited Company.

The Regulatory Affairs Group is led by a Head of Regulatory Affairs who reports directly to the Safety & Regulatory Affairs Director. The Regulatory Affairs Group is responsible for providing E3S input to the engineering design through the definition of requirements and provision of expert guidance, setting the standards and informing the study of RGP, development and management of the E3S Case (or equivalent safety analysis report) and setting the strategy for and execution of the strategy for acquisition of licences and permits in the UK and overseas in support of deployment of the Rolls-Royce SMR power station.

The Security Group provide informed security and safeguards input for the design, which is provided via the Regulatory Affairs Group under an integrated E3S input. They also set Security Policy and deliver governance and assurance over the business. The Security Group sits within the Safety and Regulatory Affairs Function Directorate. The group provides a security function for the whole of the business. This includes personnel security, physical security for company facilities, cyber security and information security. The policies and procedures in place recognise the specific requirement for a civil nuclear business and the pertinent legal obligations and regulations. The development and management of the Nuclear Security Case for the RR SMR.

The Safety & Regulatory Affairs function is subject to assurance by the Nuclear Assurance team as is the rest of the business. Assurance is provided by Independent Oversights activities and Independent Peer Review in line with the relevant process framework. The activities form part of the Total Assurance integrated assurance plan and arrangements.

The Safety and Regulatory Affairs Director delegates authority to the Head of Health, Safety, Environment and Quality (HSEQ) and subsequently the IMS Manager, for setting the strategic objectives of the IMS in line with business objectives and external requirements and expectations. The Head of HSEQ also has delegated responsibility for coordinating the development and implementation of the IMS development and deployment programme, IMS governance, assessment, and continuous improvement.



The HSEQ Organisation forms part of the Safety and Regulatory Affairs Function as shown below:{REDACTED}

#### Figure 17.2-2: HSEQ Organisation



In support of the management arrangements for the IMS, several key roles and responsibilities have been identified to enable the effective governance, management and continual improvement of the IMS. Process Owners are accountable for the process value stream, providing strategic direction and ensuring processes are aligned with organisational strategies. Process Leads are responsible for the overall design and definition of the value stream steps and procedures and deployment of compliance, risk and controls into the process. Further details on IMS roles and responsibilities are captured within the IMS Manual [25].

Rolls-Royce SMR Limited demonstrates leadership and commitment to the management of E3S through:

- The establishment and deployment of policies and objectives.
- Clear roles and responsibilities identified and maintained through the Board of Directors, Executive Leadership Team, Safety and Regulatory Affairs Director and the wider Rolls-Royce SMR Limited teams.
- Providing direction and governance on culture through the Rolls-Royce SMR Limited values, behaviours, and supporting policies, which encourages safe behaviours throughout the organisation and is aligned with the core values and behaviour traits defined by the World Association of Nuclear Operators (WANO) and International Atomic Energy Authority (IAEA).
- Optimisation of the design from an E3S Case perspective in accordance with As Low as Reasonably Practicable (ALARP), Best Available Techniques (BAT) and Secure and Safeguards-by-Design approaches.
- Reviewing the deployment of the arrangements on a regular basis through business reviews to ensure continual improvement.

#### 17.2.1.1 Governance Arrangements

The Business Governance, Risk and Compliance Framework [31] defines, at the highest level, an overarching view of the business requirements, how these are met and governed by the Rolls-Royce SMR Limited Board and ELT, the accountabilities, and the supporting governance and risk management framework.

By implementing this framework, this supports the achievement of the E3S objective of 'protecting people and the environment from harm' and takes into account the interfaces between E3S.

This framework also supports the delivery of the Rolls-Royce SMR Limited Vision, Mission, Values and Strategy supported by delivery programmes, management plans, a competent and capable organisation, governed by a framework of Delegation of Authority (DoA), committees, procedures and controls.

#### 17.2.1.2 Key Meetings in Support of Management of E3S and Quality Assurance

A description of the key bodies in support of Management of E3S and Quality Assurance are as follows:

- The Rolls-Royce SMR Limited Board is the primary executive function where major business decisions and directions are sought. The Rolls-Royce SMR Limited Board addresses all aspects of business operations, ensuring that the Business Plan and objectives are being maintained and that all corporate policies are adhered to.
- The Executive Leadership Team (ELT) reviews business performance and where appropriate, makes decisions that will enable the successful future delivery of the overall business



strategy and objectives. The ELT oversee 6 Sub-Committees two of which are BESC and BASC. The Business Excellence Sub Committee (BESC) is the governance that assures and approves the maturation of the change portfolio. Business Approvals Sub-Committee (BASC) is the focal point for decision making and internal assessment on change programmes or significant capability builds delivered through medium and major change initiatives. These management system requirements are defined in reference 27, noted in section 17.1.3.

- The Design, Safety and Environmental Advisory Committee (DSEAC) provides independent advice to the Chief Executive Officer (CEO) of the business in relation to matters of design philosophy, nuclear safety, radiological environmental protection, and security in relation to the proposed design and layout of, and the associated E3S Case developed to support the development of the Rolls-Royce SMR design.
- The Health, Safety, Environment and Quality (HSEQ) Sub Committee reviews, and where appropriate, makes decisions that support and govern the Rolls-Royce SMR Limited HSEQ vision, strategy and delivery programme. The review includes both the HSEQ enablers and business performance to ensure the management arrangements are adequate and continue to be effective in satisfying the Rolls-Royce SMR Limited business stakeholder, industry and HSEQ assurance programme and expectations.
- The Strategic Security Sub-Committee provides strategic direction and management reviews on all security activities, including but not limited to Cybersecurity across the Company, including alignment and priority of activities against key business strategic goals as well as risk acceptance, resolution of audit issues, accountability for the Integrated Security Management System and includes review of Statement of Applicability (SoA) as defined by ISO 27001 and continuous improvement.
- The Audit and Risk Committee takes place quarterly and its purpose is to ensure the integrity of the financial reporting and audit process and to oversee the maintenance of sound internal control and risk management systems.

These governance arrangements support Rolls-Royce SMR Limited in establishing behavioural expectations to foster a strong nuclear safety culture (See Section 17.5).

#### 17.2.1.3 Organisational Capability

Rolls-Royce SMR Limited continue to develop an organisation that supports the progression of design maturity, fit for the purpose of delivering an adequate design and supporting E3S justification. The organisation has been sized based on respective organisations and the maturity of the business. Rolls-Roye SMR Limited take into account previous experience in key roles and look for diversity in knowledge and experience. This has involved recruitment programme that continues to populate the organisation with competent individuals via an established recruitment process.

Key competences and mandatory training qualifications are set out in each job description and defined by suitably qualified and experienced persons. Persons are then recruited against these job descriptions in line with the company governance. Once onboarded into Rolls-Royce SMR Limited, individuals are assessed for these key competencies and other competence. Any gaps in competence are addressed and/or mandatory required training. Results are recorded in the Rolls-Royce SMR Limited SMART Learning system. For some niche roles where it is deemed appropriate and where the recording of experience is important in demonstrating competence, 'On the Job Training' manuals are maintained and recorded in SMART Learning to aid in the demonstration of competence.



Supply chain partners are engaged, from time to time, to provide specialist competence that Rolls-Royce SMR Limited does not require in the long term, cannot be sourced from the open market in sufficient timescales and/or to accommodate peaks in the workload. Assurance of the competency of supply chain partners is managed by suitably competent individuals as part of Rolls-Royce SMR Limited business arrangements.

Rolls-Royce SMR Limited continue to develop the learning from RGP for organisational capability. An update on these arrangements will be reported in a future revision of the E3S Case as evidence is developed in line with E3S Case Route Map [8].

## 17.2.2 Resource Management and Competency

#### 17.2.2.1 Provision of Resources

Recruitment for Rolls-Royce SMR Limited is carried out in line with the Rolls-Royce SMR Limited process, S1.2.1-1 Manage Recruitment [33] which sets out the requirement to identify competence criteria for the post.

Rolls-Royce SMR Limited Head of Functions and supporting Managers, reporting to the appropriate Executive Leadership Team member, and are responsible for ensuring that resources that are essential to the implementation of the strategy for the management system and the achievement of the organisations objectives are identified and made available.

Resources are delivered into an Organisational Design and assigned through Work Packages relevant to the delivery of the Programme. As the business develops the Organisational Design will change as a result of Strategic Workforce Planning which enables the business to use its capabilities in the right way as well as develop and retain skills for the future business state.

Rolls-Royce SMR Limited arrangements for intelligent customer capability are captured in the Supplied Products and Services Management Plan [34] which has been developed in line with international good practice and the guidance of ONR Technical Assessment Guides [14]. See Section 17.2.3 for further details.

#### 17.2.2.2 Learning and Development – Competency Framework

Rolls-Royce SMR Limited utilise a competency framework which is used to assure competent resource in relation to business activities. The competency framework is described in the Rolls-Royce SMR process – S1.1.4-1 Develop Competence Framework [35]. This process requires the development of competencies and agreement of required competency levels which result in the competency framework.

Rolls-Royce SMR Limited take a systematic approach to assessing competence and maintaining core capabilities. The arrangements ensure that all employees and embedded contractors have the required level of competence to safely perform routine and emergency roles, meeting all E3S requirements.

Rolls-Royce SMR Limited carry out assessment of individuals against the competency framework in accordance with Rolls-Royce SMR Limited process – S1.3.1-1 Assess Competence [36]. This involves the assignment of individual competencies and review against those competencies to identify any training needs.

On completion of the Competency Assessment, experience and knowledge are reviewed and training needs are identified, and subsequent development training undertaken in line with the Rolls-Royce SMR Limited process – S1.3.3-1 Undertake Training and Evaluation [37]. This process



enables individuals to be provided with the knowledge and skills required to enhance their competency, supported by their behaviours and experience.

For third-party contracting partners, Rolls-Royce SMR Limited assess competency including assessments of competency records and competency based interviews. Upon employment evidence of experience and qualifications of all secondees is requested to establish a competency record. All secondees are required to complete the Mandatory Learning for secondees (Export Control, Data Privacy, Confidential Information, Cyber Security) via SMaRt learning. All Secondees are required to upload their Qualifications and Experience into SMaRt learning as an interim measure prior to competence assessment details being uploaded from their home organisation or a full competence assessment being undertaken by Rolls-Royce SMR. Competency assessments can be done at the secondees home organisation, but if they do not have Skills Assured or a similar system Rolls-Royce SMR Limited will undertake the assessments using our Skills Assured system.

The Competency Framework enables Intelligent Customer competencies to be captured and assigned to individuals to demonstrate Intelligent Customer capability within the business.

## 17.2.3 Procurement Control

Rolls-Royce SMR Limited have developed a Supply Chain Organisation and supporting strategy to deliver a sustainable, fit for purpose (in line with required quality standards), right first-time products, services and outcomes, on time and in budget whilst demonstrating value for money. It takes into account international good practice and the guidance provided in the ONR Technical Assessment Guides; NS-TAST-GD-077 Supply Chain Management Arrangements for the Procurement of Nuclear Safety Related Items or Services [38] and NS-TAST-GD-049 Licensee Core Safety and Intelligent Customer Capabilities [39].

The organisation has been developed to enable effective partnering within the business, embrace and drive the intelligent customer approach and is meaningful to the supply chain markets.

Rolls-Royce SMR Limited will maintain control of procurement activities through compliance with the IMS process, S4.3.2-1 Manage Supplier [40], which captures the arrangements for defining products and services, supplier evaluation, assessment and selection along with the sourcing and contracting of the supplier and subsequent review and release of the product or services.

Rolls-Royce SMR Limited monitor and manage supplier performance in line with the Rolls-Royce SMR Limited process, S4.7.1-1 Monitor and evaluate supplier performance [41], which involves the collection and analysis of supplier performance data.

Rolls-Royce SMR Limited are deploying an intelligent customer framework to ensure it has adequate control over goods and services provided by the supply chain. These arrangements are documented in the Supplied Products and Services Management Plan [34].

The Supplied Products and Services Management Plan [34] includes the arrangements for specification of requirements, oversight of work carried out and an understanding of the implication of results or conclusions.

Intelligent Customer Capability includes anything that has a significance to E3S such as design activity, E3S Case production and the purchase of items with E3S functionality.

Rolls-Royce SMR Limited cascade quality assurance requirement to suppliers of products and associated services as contract appendices via Rolls-Royce SMR Limited Supplier Management Systems Requirement (SMSR) document [42]. This document specifies requirements associated with the supplier and sub-supplier quality and business management system and includes but is not limited to Nuclear Safety Culture, Security, Export Control, Contract deliverables, Counterfeit Fraudulent and Suspect Items (CFSI) Prevention, Lifetime Quality Records, Inspection control,



competency of personnel as well as other requirements. These requirements are determined based on safety classification and quality assurance grades determined in technical specifications which describe the contract scope of work.

During the supplier down-selection phase, Rolls-Royce SMR Limited Supply Chain Quality Assurance team conduct an assessment audit against the SMSR document [42] to determine the level of quality assurance arrangements established by suppliers and identify any gaps and risks related to supporting the successful delivery of safety classification of works that the supplier is undertaking. Suppliers are expected to demonstrate an appropriate level of compliance prior to any works commencing. To verify that the supplier is maintaining the required level of quality assurance, Rolls-Royce SMR Limited Supply Chain Quality Assurance team utilise a Supplier Audit programme to undertake assessments dependent on assessment audit outcomes, risk levels and contract progress.

Technical service providers supporting the development of the Rolls-Royce SMR Limited are confirmed as competent to undertake contracted scopes of work through the Rolls-Royce SMR Limited supplier qualification process, Rolls-Royce SMR Limited process S4.33.1-1 Evaluate capability of supplier [43].

The arrangements captured in this section support the demonstration of Rolls-Royce SMR Limited Intelligent Customer capability, which has resulted in the recruitment of competent resource who are highly capable in their disciplines, many whom have worked in the nuclear industry for significant periods.

## 17.2.4 Document and Records Control

Documents are produced, stored and maintained in line with the standard for Management of Documented Information (Records) [44]. All documents and records produced have their 'Retention Category' identified on the document or record.

Engineering documentation is prepared in accordance with the Rolls-Royce SMR Limited Engineering Management Plan [45] and subsequent Rolls-Royce SMR Limited process, C3.2.1-4 Technical Checking and Approval Process [46].

The E3S case documents are Independently Peer Reviewed (IPR) in accordance with RR SMR Limited S2.3.2-2 Conduct Assurance Activity (Independent Peer Review) [47], which supports the Total Assurance Model detailed in Section 17.2.6, requires an IPR plan to be generated, which uses the output of the application of the E3S categorisation guidance document [48], together with global / holistic considerations and intelligence on areas of concern that are gained by the Independent Nuclear Assurance team, to inform on areas that IPR should focus more on. The implementation of the IPR plan can therefore lead to additional documents being subject to IPR than those identified through the categorisation and guidance document to provide additional levels of assurance.

The arrangements for marking of business sensitive information are captured in Rolls-Royce SMR Marking of Business Sensitive Information Standard SMR-STD-003 [49]. This standard describes the specific markings to be aligned with business sensitive information. This standard is supported by adjacent standards relating directly to the Management of Sensitive Nuclear Information, Management of Export Control Requirements Standards, Commercial Markings Standard, inclusive of third-party artefacts and privacy (described within General Data Protection Regulation (GDPR) and Data Protection Act (DPA) clauses).



#### Control of Non-Conformance, Corrective and Preventative Action

Rolls-Royce SMR Limited uses a non-conformance (deviations) Rolls-Royce SMR Limited process, S2.4.1-1, Respond to Compliance Deviations [50] for the reporting and management of non-conformances, including assurance and compliance audit review findings and actions. These are recorded and tracked using an IT system tool called My Compliance.

#### Non-conformance (Deviation) Definitions

Non-conformances are categorised based on the impact and severity. These definitions include:

#### Major Non-conformance

The absence of, or failure to implement or maintain, one or more management system elements, which could raise significant doubt in the company's ability to achieve:

- Policy requirements
- Strategic objectives
- Public commitments
- Cultural expectations
- Compliance with applicable regulatory requirements
- Conformance to applicable customer requirements
- Conformance with audit criteria deliverables.

#### Minor Non-conformance

A finding indicative of a weakness in the implemented and maintained management system, which has not significantly put at risk the outcomes of the management system but needs to be addressed to assure the future performance of the system and demonstrate RGP.

#### **Opportunity for Improvement (OFI)**

Opportunity to improve the business systems and / or arrangements. It is not necessarily an item that will lead to a future non-conformance if not addressed. OFIs in some cases come from an auditor's experience in industry, learning and shared good practice.

#### **Problems Solving and Actions**

The approach and level of problem resolution and investigation is based on a deviation sentencing matrix defined within Rolls-Royce SMR Limited process, S2.4.1-1, Respond to Compliance Deviations [50]. This ensures appropriate root cause analysis techniques are applied and effective preventative and corrective actions are taken. The process concludes with the requirement to confirm the effectiveness of the resolution and capturing of appropriate lessons learned.

#### Metrics and Management Review

The number of findings, type and status are measured and reviewed on a monthly basis. Trend analysis is carried out and learning built into continuous improvement activities.



## 17.2.5 Programme Management Organisation

#### 17.2.5.1 Programme Management Office (PMO)

Rolls-Royce SMR Limited has developed suitable project and programme management arrangements which capture the development of baselines, schedule and interface management, cost management, risk and opportunities management, performance and change management and reporting.

The PMO has responsibility for the business and RR SMR reporting. As part of the PMO function, it sets the RGP (Relevant Good Practice) in terms of project management for the rest of the business. The PMO is responsible for IMS processes [51] about how to report, control budget, manage risk, change control and planning. This provides a set of guidelines and expectations for any local projects to operate within.

GDA as a project is owned by the Safety and Regulatory Affairs Function. The Safety and Regulatory Affairs Director and the Head of Regulatory Affairs have responsibility for delivery of GDA. The GDA requirements are managed and delivered in accordance with the Regulatory Affairs Group Functional Manual [52] which details how the function operates and who sits within the hierarchy. Within the Programme Management Office there is a team of Project Managers who help enable the safety and regulatory affairs team by locally applying business project management framework against the requirements of GDA. This is written down in the Project Management Plan (PMP) [53]. This plan is due to be updated for the start of Step 3, fundamentally the PMP outlines how wider business process are applied for GDA and where exceptional items are identified, it refers out to specific GDA Ols.

The organisation in place to deliver Project Management activities is shown in Figure 17.2-3 below:

#### {REDACTED}

#### 17.2.5.2 Project Management Plans

Rolls-Royce SMR Limited process, S9.2.1-1 Plan Project and Ensure Feasibility [54], defines the requirement to capture project arrangements within a Project Management Plan which is supported by individual management plans covering all aspects of the project including governance, assurance, resource, communication and costs.

For GDA activities, a GDA Project Management Plan [55] has been developed which sets out the arrangements and controls for the project and is supported by the GDA Quality Management Plan [30] which identifies the quality assurance arrangements for the project.

## 17.2.6 Total Assurance Model

Rolls-Royce SMR Limited have developed an integrated assurance programme which is risk informed and operates a 'Total 'Assurance' Model (Figure 17.2-4).

#### Figure 17.2-3: PMO Organisation





Figure 17.2-4: Rolls-Royce SMR Limited Total Assurance Integrated Programme

This process is implemented in accordance with the Rolls-Royce SMR Limited processes below:

- Rolls-Royce SMR Limited process, S2.3.1-1, Develop Integrated Assurance Programme [56].
- Rolls-Royce SMR Limited process, S2.3.2-1, Conduct Assurance Activity [57].
- Rolls-Royce SMR Limited process, S2.3.2-2, Conduct Assurance Activity (Independent Peer Review) [47].
- Rolls-Royce SMR Limited process, S2.3.3-1, Conduct Concurrence [58].

The Total Assurance Model identifies three levels of assurance from self-checking, functional oversight and independent oversight.

Internal self-checking controls and reviews are based on a complementary set of arrangements including delegated authorities and accountabilities, policies, procedures, systems, document templates and value stream reviews. All decision rights delegated authorities / accountabilities are documented and approved.

Functional Oversight involves assurance functions using a risk based, integrated audit and assurance programme to review compliance to procedures and internal controls. The integrated audit and review assurance programme is developed by the Rolls-Royce SMR Limited Assurance Manager (Quality). The development of the programme is supported by all assurance and risk functions, and appropriate Process Owner and Programme Leads. The assurance programme is delivered using suitably qualified and experienced auditors that are independent from those performing the task.

The Nuclear Assurance Team are responsible for providing Independent Oversight (which includes Independent Peer Review) which assures the E3S performance and culture of the business against the standards expected of the nuclear industry and its regulators.

### 17.2.7 Knowledge Management and Learning from Experience

Knowledge Management (KM) is an important activity as it can reduce the amount of time spent searching for information, reduce rework and encourage collaboration.



Rolls-Royce SMR Limited utilise a structured approach to planning and capturing of knowledge and sharing of RGP within the organisation which is presented in the Rolls-Royce SMR Limited Knowledge Management Framework Summary [59].

Rolls-Royce SMR Limited uses shared learning from industry international standards and regulations (such as International Atomic Energy Agency, Office for Nuclear Regulation, Health and Safety Executive etc.); from external groups (such as World Nuclear Association (WNA), Electrical Power Research Institute (EPRI), and Safety Directors Forum Working Groups. This also includes shared learning and Operational Experience (OpEx) from investors (primarily Constellation and Rolls-Royce Group) and the supply chain.

This learning is embedded into the development of the E3S Case, development of the design, IMS procedures, arrangement, enablers, training and culture programmes.

Rolls-Royce SMR Limited also makes every effort to consider learning from other industries and similar programmes as part of this knowledge capture and sharing.

In support of continues improvement, at appropriate stages within project and programmes, facilitated learning from experience events are held to capture areas for improvement, and what's working well. These are reviewed and embedded into processes and arrangements.



## 17.3 E3S Case and Design Management Arrangements

## 17.3.1 E3S Case Arrangements

Rolls-Royce SMR Limited are developing a hierarchical E3S Case with three tiers of documentation, structured through a high-level claims, arguments, evidence (CAE) approach, described in E3S Case Chapter 1: Introduction [1].

The development and management of the E3S Case is governed by a suite of arrangements that flow down from the Regulatory Affairs Group Functional Manual. This includes:

- E3S Requirements and Analysis Arrangements [60], which describe the process and document hierarchy for the input of E3S into the design. It also describes the analyses performed in support of, and confirmation of, design choices in the evolution of the design. The document is part of the IMS and refers out to a series of company standards that describe further details of specific E3S analysis methods and their integration with design processes.
- E3S Case Development and Management Arrangements [61], which describe the responsibilities, governance and flow for the development and management of the integrated E3S Case as the design matures. The document is part of the IMS and refers out to supporting guidance such as the E3S Case style guide.

## 17.3.2 Configuration and Requirement Management

The Rolls-Royce SMR Limited design is being developed through a combined systems engineering and E3S assessment approach. Rolls-Royce SMR Limited will utilise, where appropriate, a set of systems engineering and robust design techniques in order to ensure that the integrated design solution is optimised to meet all key requirements, including E3S requirements that support demonstration that risks are acceptable and reduced to ALARP.

#### 17.3.2.1 Reference Designation System - Power Plants

Reference designation for Structure, System and Component (SSCs) within the RR SMR power station scope is implemented in accordance with the Reference Designation System-Power Plants (RDS-PP). RDS-PP is internationally recognised and is referenced within the International Electrotechnical Commission (IEC)/International Organisation for Standardisation ISO 81346 [62] series of standards (industrial systems, installations and equipment and industrial product – structuring principles and reference designations). RDS-PP provides a unique designation for each plant object throughout planning, licensing, construction, operation, maintenance, and decommissioning.

The RDS-PP designation and hierarchy is used to assess relationships and potential change impacts.

#### 17.3.2.2 Requirements Identification

Requirements are developed for the RR SMR Limited through the design and analysis processes. This includes E3S requirements, which are a specific sub-set of requirements as described in E3S Case Chapter 1: Introduction [1]. Further information on the derivation and integration of E3S requirements into the engineering processes is described in E3S Requirements and Analysis Arrangements [60].



#### 17.3.2.3 Requirements Management

For Rolls-Royce SMR Limited, requirements are captured within the project's requirements management database, in a structure that aligns to the functional product breakdown for Rolls-Royce SMR Limited. As part of the systems engineering approach, requirements are flowed from the programme to power station, to system and then to sub-system/component level in a clear, consistent, integrated and traceable approach. The resultant hierarchical design then undergoes progressive verification and validation to demonstrate evidence-based compliance with the requirements set, and to give confidence that the solution meets the operational needs of the programme/customer.

Requirements management is a continuous process, applicable throughout the project delivery lifecycle. Requirements will be managed such that at each stage of definition or phase of project, there is a clearly defined and agreed set of approved requirements. Any change or addition to these requirements shall be managed and communicated, with clear traceability of the reason for change and the impact of that change on the activity/design definition.

#### 17.3.2.4 As Low As Reasonably Practicable, Best Available Techniques, Secure by Design, Safeguards by Design

The following principles seek to ensure that nuclear facilities and associated processes and activities are optimised to ensure maximum protection of workers, members of the public and the environment until such a point that the benefits of implementing further protection measures becomes grossly disproportionate to the cost of doing so.

- ALARP a requirement under the Health and Safety at Work Act (1974) [63] to ensure that
  risks to health, safety or welfare of their employees are kept to a minimum and that persons
  not in their employment are not exposed to unnecessary or disproportionate risks to their
  health or safety. ALARP is not prescriptive but goal setting, placing a requirement on the
  duty holder to demonstrate risks have been minimised; the judgement made, being a
  balance of risk versus sacrifice weighted in favour of health and safety. The same ALARP
  principles also apply to the demonstration of the application of BAT, as part of compliance
  with Environmental Law.
- BAT demonstrate the use of BAT to minimise the impacts on members of the public (and the environment) arising from radioactive substance activities (and other industrial processes) to levels that are 'As Low As Reasonably Achievable (ALARA)'. Further information is captured in the Optimisation through the Application of BAT report [64].
- SByD demonstrate a secure design from theft, sabotage, compromise of sensitive material and protection against diversion of nuclear material from peaceful uses are fundamental precepts underlying the UK nuclear licensing and environmental permitting legislation.
- Safeguard by design including the consideration of international safeguards throughout all phases of a nuclear facility project, from the initial conceptual design to facility construction and into operations, including design modifications and decommissioning.

The responsibility is with the design lead with input from stakeholders from Safety and Regulatory Affairs, to demonstrate that the risk presented by the design to the public, workers and the environment is ALARP and applies BAT, and that the product is secure by design and safeguards by design. Designs are reviewed by the Engineering Interface Team against these principles and their inclusion in the design process demonstrated.

The design decision making process is used to for undertaking optioneering, presented in the Rolls-Royce SMR Limited process, C3.2.2-2 Conduct Design Optioneering [65]. The justification of design



decisions with respect to reducing risks to ALARP, applying BAT, and ensuring SbyD and secure by design, is recorded in the Rolls-Royce SMR Limited Decision Record Template [66]. This also documents the consideration of sustainability and balance of social, environment and economic impacts in the decision process.

Use of decision record templates for all design decisions enables consistent approach across the full RR SMR design and ensures that the benefits and disadvantages of all key decisions are captured and documented.

Further detail on principles of ALARP, BAT, SbyD and safeguards by design can be found in E3S Case Tier 1 Chapters 24, 27, 32 and 33 respectively.

## 17.3.3 Configuration and Change Management for Design and E3S Case

#### 17.3.3.1 Configuration Management for the Design, E3S Case and Design Reference

The RR SMR is currently in the design phase and the E3S Case is developing alongside it, with E3S analysis informing the design.

Rolls-Royce SMR Limited utilises a Master Records Index (MRI) [67] which will at any given RD contain all artefacts relating to the design and its justification for the whole power station at that point in time.

The E3S Case Route Map is a 'live' tool used by the E3S Case team to manage the E3S Case as it develops alongside the design. It is developed in conjunction with the relevant engineering and analysis teams to provide confidence in the completeness of the CAE for each chapter of the E3S Case. It also provides a forward trajectory of Tier 2 and Tier 3 information as the E3S Case is developed alongside the maturing design.

Rolls-Royce SMR Limited has used a subset of the MRI, aligned with the E3S Case Route, to define the Design Reference Report [68], which meets the requirements of the Design Reference (DR) for GDA. The DR report defines the baseline design reference configuration that the GDA submissions refer to at a point in time, known as a DRP. A number of agreed documents listed in the DRP report are submitted to the regulators via the Master Document Submissions List (MDSL) in line with GDA operating instruction, Regulatory Correspondence [69].

The DRP report lists all of the current design documents that define the RR SMR design.

The DR will be frozen at regular DRPs, which will result in an up-issued DRP report. The DRPs will be in line with the internal design baselines on which the E3S Case issues are based, ensuring that each issue of the E3S Case is consistent with a DRP plus agreed changes. The final issue of the E3S Case submitted within GDA will align exactly with an agreed DRP.

#### 17.3.3.2 Change Management for the Design, E3S Case and Design Reference

Rolls-Royce SMR Limited are utilising an integrated change control process to manage change to the design, the E3S Case and to the Design Reference (for GDA) to increase consistency and reduce potential errors or omissions. The high-level steps of the integrated change control process are provided in Figure 17.3-1.



Figure 17.3-1: Change Control Process Flow

The change control process will enable the identification of resulting document changes that are part of the E3S Case, i.e., those in the E3S Case Route Map. Accompanying guidance is detailed within the Rolls-Royce SMR Limited process, C3.2.1.9 Manage Change [70].

The Configuration Management Plan [71] establishes the overall configuration principles for the entire Rolls-Royce SMR power station and the methods that maintain integrated change control between the interfacing parts, assemblies, systems, islands, and the wider civils structures.

The Rolls-Royce SMR Limited process, C3.2.1.9 Manage Change [70] establishes the change management approach for Rolls-Royce SMR and describes when to introduce change, the types of change and how it is enacted.

Guidance on the Execution of the Change Control Process for Engineering and E3S Changes SMR-GDN-071 [84] provides additional detail on how Rolls-Royce SMR Limited enacts change control, including how to assess the impact of proposed changes to the RR SMR design, and determine whether the impact would be acceptable or not, then either accept, reject or defer the change as a result. Part of this impact assessment includes determining the E3S impact and impacts to the E3S Case.

Rolls-Royce SMR Limited implemented change control of the RR SMR design, upon declaration of the design within the Design Reference Report [68].

All changes will be collated and referenced in the DRP report [68] and all changes and impacts to E3S documentation will be identified and managed through the integrated change management



process defined in the Rolls-Royce SMR Limited process, C3.2.1.9 Manage Change [70] which incorporates change impact assessment, categorisation, approval authorities and governance arrangements.

Changes in accordance with Rolls-Royce SMR Limited process, C3.2.1.9 Manage Change [70] and supporting Rolls-Royce SMR Limited guidance, RR SMR-GDN-071 Guidance on the Execution of the Change Control Process for Engineering and E3S cases [84] will be recorded and managed within the Rolls-Royce SMR Limited Product Lifecycle Management (PLM) tool, Teamcenter<sup>®</sup>. Teamcenter will hold the record of each change and will specify documents and records that are impacted, referenced and introduced by the change. Teamcenter is also used to manage the governance, review and approval of changes in accordance with the arrangements referenced above.

## 17.3.4 Regulatory Affairs Group Functional Manual

The Regulatory Affairs Group Functional Manual [23] describes how Regulatory Affairs Group provide the E3S principles, requirements, inputs and how these are delivered across the business, specifically that the design meets the needs of the Rolls-Royce SMR Limited business.

The Regulatory Affairs Group is responsible for providing E3S input and analysis to the engineering design through the definition of requirements and provision of expert guidance, setting the standards and informing the study of RGP, development and management of the E3S Case (or equivalent safety analysis report) and setting the strategy for and execution of the strategy for acquisition of licences and permits in the UK and overseas in support of deployment of the RR SMR.

## 17.3.5 Assurance

#### 17.3.5.1 Design Assurance

Engineering documentation is prepared in accordance with the Rolls-Royce SMR Limited Engineering Management Plan [45] which includes four levels of Engineering Governance, the Rolls-Royce SMR Limited process, C3.2.1.-1 Engineering Programme and Maturity (MR) Gate Review [72], the Rolls-Royce SMR Limited process, C3.2.1-2 Definition Review (DR) Process [73], Rolls-Royce SMR Limited process, C3.2.1-3 Gated Review (GR) Process [74] and Rolls-Royce SMR Limited process, C3.2.1-4 Technical Checking and Approval Process [46].

#### 17.3.5.2 Engineering Approval and Delegated Authority

The Chief Engineer/Engineering Director has the accountability for release / approval of all engineering output in the programme and the accountability to ensure the product safety and quality. This is exercised in line with Delegate Engineering Authority [75] which includes E3S experts. The E3S analysis verifies and provides feedback into the engineering design and subsequently the engineering output. Finally, the E3S assurance described below complements the engineering review to provide thorough multi-angled governance and assurance.

#### 17.3.5.3 E3S Assurance

E3S Case documentation, including Tier 1, 2 and 3, follows the same Technical Checking and Approval Process [46] as other engineering documentation, and is also supported by Rolls-Royce SMR Limited process, S2.3.2-2 "Conduct Assurance Activity (Independent Peer Review Procedure) [47]. The level and type of governance and assurance required is determined by the categorisation of the document and further input from the IPR function.



Governance over E3S activities in Rolls-Royce SMR Limited is provided through the Safety and Regulatory Affairs Director who maintains active line management and oversight of E3S activities through the Head of Regulatory Affairs, E3S Case Manager and independent nuclear oversight via the Head of Nuclear Assurance.

Heads of the Safety and Regulatory Affairs Function provide governance oversight and technical approval of work undertaken in their defined areas of responsibility.

The Nuclear Assurance team deliver IPR of the E3S Case as it matures through the GDA process and beyond. This requires documentation of E3S significance to be subject to an appropriate depth and breadth technical review by competent persons, who are fully independent of those who produced, reviewed, and approved them, to provide additional assurance that the document is valid and fulfils its intended purpose.

The Design, Safety, Environment, Advisory Committee (DSEAC) provides independent review and challenge to the E3S Case (see Section 17.2.1).

Further details on the governance arrangements for the E3S Case are described in the E3S Case Development and Management Arrangements [61].

## **17.3.6 Commitments and Assumptions**

Rolls-Royce SMR Limited has developed a process 'Identifying, Recording, and Tracking GDA and Licensing Assumptions and Commitments' [76]. This process captures the arrangements for the capture and recording of assumptions and commitments in the E3S Case that are placed on future duty holders, and how they are shared with future licensees.

Assumptions and commitments will be raised through the development of the E3S Case. Each assumption and commitment, along with the corresponding route for identification, tracking and recording, will be recorded in the Assumptions and Commitments (AC) for future Duty Holders Register [77] that is appropriately linked to the E3S Case, noting this will be facilitated by the case management software as described in Section 17.3.1.

### **17.3.7 Master Document Submissions List and Document List**

To support the requirements of GDA, Rolls-Royce SMR Limited has developed combined Master Document Submissions List (MDSL) and Document List (DL) [78].

The MDSL, as defined by the ONR, defines the submissions included withing the scope of GDA. The MDSL is a living document that allows ONR to understand and reference precisely what constitutes the latest versions of the GDA submissions.

The DL provides a full audit trail capturing submissions of all Rolls-Royce SMR Limited documents that have been submitted to the regulators, including responses to Regulatory Queries (RQs), Regulatory Observations (RQs) and Regulatory Issues (RIs).

The MDSL is a subset of the DL. Where several versions of a document have been submitted and are part of 'reference submissions', then only the latest version is tagged as belonging to the MDSL, however all versions belong to the DL.

Instructions for the maintenance and management of the MDSL and the DL is captured in Regulatory Correspondence [69]. The MDSL is shared with Regulators on a periodic basis.



## 17.3.8 Operational Limits and Conditions

Operational Limits and Conditions (OLCs) are derived through the design and safety analysis processes, which will be captured in RR SMR's requirements management database and eventually extracted as appropriate to develop Technical Specifications for Rolls-Royce SMR Limited. The process for managing the flow of OLCs into operational documentation is outlined at a high-level in E3S Case Tier 1 Chapter 16: Operational Limits and Conditions [79]. Definition of OLCs will be presented in the E3S Case from RD9 onwards.



## **17.4 Continuous Improvement of Arrangements**

## 17.4.1 Monitoring and Assessment

Rolls-Royce SMR Limited is a learning organisation that observes and measures the effectiveness of the management system which supports the identification of opportunities for improvement.

The effectiveness of the IMS is evaluated through the Assurance arrangements identified in Section 17.2.6 and through periodic business reviews as required by Rolls-Royce SMR Limited process, M3.2.1-1, Define Management System Requirements [25], which are conducted to understand business performance, effectiveness of processes, risks, issues and opportunities.

Non-conformances are recorded and managed in line with Rolls-Royce SMR Limited process, S2.4.1-1 Respond to Compliance Deviations [50]. This process includes the identification of corrective actions to eliminate causes of non-conformance and preventing recurrence.

The Rolls-Royce SMR Limited Total Assurance Process, detailed in Section 17.2.6 of this chapter, details the assurance activities that support the evaluation of the management system in the form of a three-tier process, from self-checking, functional oversight and internal oversight.

Rolls-Royce SMR Limited have developed a process for Continuous Improvement, identified in Rolls-Royce SMR Limited process, M3.6.1-1 Deliver Continuous Improvement [80], this provides a structured approach to improvement, based on the Shewhart Cycle of Plan, Do, Check, Act (PDCA), which captures the expectations of knowledge management and lessons learned. In order to deploy this process Rolls-Royce SMR Limited are producing a Continuous Improvement Framework which will utilise the BESC methodology and will create a project hopper to ensure continuous improvement projects are prioritised within the business.

## 17.4.2 Performance Monitoring and Improvement

Rolls-Royce SMR Limited have developed a suite of Key Performance Indicators (KPIs) for the business which are reviewed on a periodic basis to ensure performance targets are achieved and improvements are identified and implemented. The performance measure for part of the Plan Do Check Act lifecycle and provide indicators on the performance and effectiveness of the arrangements and identify areas for improvement and / or good practice. This is captured via a metric plan for quality of submissions in which the Quality Assurance function measure the consistency and deployment of submissions. This will be delivered alongside current relevant metrics to regulators on a monthly basis.

For GDA, the following are reviewed monthly:

Regulatory Nuclear Interface Protocol (RNIP) Scores – A review by both the Regulators and Rolls-Royce SMR Limited at the end of interface meetings provide agreed scores based on preparation, objectives being met and meeting behaviours. Areas for improvement, and good practice are also captured and used in future learning from experience. The following measures include:

- Average RNIP number score by month compared with target score (>= 11)
- Overall RNIPs Achieved by category (Areas for improvement, Requirements Met, Good Practice)

Meeting Programme Progress - Meetings planned vs Actual Meetings taken place by month.



Status of Regulatory Queries (RQs), Regulatory Observation (ROs) and Regulatory Issues (RIs) to track and look for trends, findings and issues with management and closure include the number of RQs raised, open and closed by month, and accumulative total number.

Status of actions to track and look for trends with the action management, on total number raised, and for the month, the number of raised, open, closed on-time.

Quality of submissions measures are currently under review to ensure that appropriate measure is in place capture effective and meaningful data. Our organisational structure and integrated management system (IMS) play decisive roles to substantiate and deliver the required E3S and engineering outputs. They provide the means to establish clear lines of authority and accountability, to define decision-making processes, and ensure that tasks are carried out efficiently and effectively (i.e. right first time). They correlate to provide the quality control elements of both resource management and technical governance. These elements are coordinated through people managers and team leaders, and by technical specialists, experts and leads. The overall approach is structured to maximise leverage of internal and external knowledge, understanding and skills, to deliver appropriate flexibility and quality controls.

Success is demonstrated by a robust work and review scheme, founded on a clear understanding of how product maturity will be realised, and risks mitigated. The scheme requires that a senior level independent panel be assembled periodically to review the status of the programme. At each review the panel seeks assurance that the programme is developing in line with technical, operational and commercial expectations, consistent with the degree of maturity and qualities necessary to deliver overall power station readiness. The panel makes this assessment based on defined checklists, product maturity specifications, and against three principal criteria:

- The maturity and viability of the programme, to successfully deliver the overall power station product
- That programme risks are being managed and are tolerable within the margins of stakeholder acceptance.

That the product definition presented is in line with E3S case and the required design and licencing bases. Rolls-Royce SMR Limited business HSE and Quality KPIs and performance measures are also shared with Regulators on a monthly basis. This gives an insight to the effectiveness of the HSE and Quality management system arrangements. These include:

- HSE events and trends
- Leadership safety walks and workplace inspections
- Environmental Measures for Water / Gas / Electricity usage, Waste and Greenhouse Gas emissions
- HSE assurance activities
- Staff occupational health and wellbeing
- HSE training
- Quality issue, non-conformances and trends
- IMS metrics including number of procedures, changes and progress on improvements
- Quality training
- Quality assurance and compliance activities.

In support of the IMS arrangements, individual processes identify specific KPIs to support the monitoring of performance and identification of improvements.



The Rolls-Royce SMR Limited Total Assurance process provides oversight and assurance through regular reviews and interactions. See Section 17.2.6 of this chapter.

Rolls-Royce SMR Limited encourage lessons learned sessions to be undertaken, to identify learning and opportunities for improvement.



## 17.5 Nuclear Safety Culture

## 17.5.1 Rolls-Royce SMR Limited Nuclear Safety Culture Arrangements

Adoption of a robust Nuclear Safety Culture is a fundamental requirement for everyone working within the nuclear industry. Rolls-Royce SMR Limited believe a healthy Nuclear Safety Culture is central to long-term success because the decisions made today will be felt for years to come.

Rolls-Royce SMR Limited Nuclear Safety Culture Policy [17] sets out the commitment for a positive nuclear safety culture. It defines everyone as a leader and ambassador for our Nuclear Safety Culture and commits to speaking on safety, acting safely, focusing on maintaining safety standards, engaging others in our culture and initiatives and recognising and praising colleagues who behave safely.

Our Nuclear Safety Culture policy aims to create an environment where our values and behaviours support our collective commitment to ensuring the protection of people and the environment from our activities and the harmful effects of ionising radiation.

Rolls-Royce SMR Limited Nuclear Safety Culture expectations flow through to the Supply Chain via the Supplier Management System Requirements document [42]. Rolls-Royce SMR Limited work with suppliers to develop and maintain the knowledge and behaviours necessary for a positive nuclear safety culture.

In support of the deployment of the Nuclear Safety Policy, key deliverables have been identified to implement the arrangements, including development of the approach and the introduction of a Steering Group, supported by a maturity model based on the Nuclear Safety Culture Assessment Framework, which Rolls-Royce SMR Limited will use to assess its maturity in relation to nuclear safety culture arrangements; thus, contributing to the development of a strong organisation and nuclear safety culture.

The Rolls-Royce SMR Limited culture programme brings together nuclear safety culture and organisational culture (Figure 17.5-1), enabling commonality. This is conducive to developing a learning organisation and working across co-supporting culture streams.



Figure 17.5-1: Rolls-Royce SMR Limited Culture Programme



The culture programme is based on the IAEA Harmonized Safety Culture Model [81], which defines the traits and attributes observed when a strong safety culture is present and takes into account RGP and operational experience.

The culture programme continues to evolve, grow, and mature in line with business maturity, experience, expectations and ambition. However, the programme will remain consistent with the following goals, it will:

- A programme which enables Rolls-Royce SMR Limited to meet the needs of customers from around the world
- Establish measures to baseline Nuclear Safety Culture and ensure ongoing assessment and continuous improvement
- Provide systems, processes and practices that enable and encourage safe behaviours
- Create a psychologically safe working environment where everyone has a voice.

Rolls-Royce SMR Limited performs several activities to help develop and promote a positive working environment and thriving nuclear safety culture. These include Culture 'Themes of the Month', regular 'Big Conversation' topics, leadership engagement tours and workplace inspections, nuclear safety culture benchmarking supported by key performance indicators to ensure continuous improvement, nuclear safety culture campaigns and the delivery of nuclear safety culture training. These activities are key to demonstrating visible leadership and employee engagement to support a strong safety culture.

The arrangements to support the business's Nuclear Safety Culture approach can be found in Rolls-Royce SMR Limited Health Safety Sustainability Environmental and Culture Manual [26] which are subject to regular review and assurance activities that are subject to rigorous and robust risk-based audit.

## 17.5.2 Sustainability

The Rolls-Royce SMR Limited can play a vital role in the decarbonisation of energy production, supporting the global transition to Net Zero. As a responsible, ethical, company we recognise that developing a sustainable product is not enough and that to succeed the operation of the company must also be sustainable. Our sustainability programme is focused on understanding the impact we have on the world, and our ability to support society in achieving higher standards of living through sustainable development.

The United Nations (UN) Sustainable Development Goals (SDGs) were unanimously adopted by all 193 UN Member states and are globally recognised as the most comprehensive, credible set of sustainability goals, aiming to address the key economic, social, environmental and governance challenges of our time. The SDGs provide a common set of global priorities, actions, and language to help consistently communicate the impacts and performance of organisations. These SDGs are considered in the RR SMR design through assessment against the 20 key design objectives during the design decision-making process, described in E3S Case Tier 1 Chapter 1 [1].

The SDG Compass has been chosen as the framework for the development of the sustainability programme. This framework requires an organisation to develop their understanding of the SDGs and prioritise key areas of focus to maximise positive and minimise negative impacts.

An initial sustainability materiality assessment has been undertaken to prioritise sustainability topics according to the significance of the impact, importance to stakeholders, and the ability of our organisation to influence those topics. The materiality assessment was informed by a series of workshops with stakeholder representatives, mapping the aspects of sustainability across our value chain. The results of the materiality assessment were analysed and aligned to the UN SDGs



identifying six key SDGs through which Rolls-Royce SMR Limited can have the greatest influence and contribution towards sustainable development:

- SDG 7: Clean, Affordable Energy for All Supported through the development and deployment of the Rolls-Royce SMR Limited which will produce low carbon energy at an affordable price, to power industry and the electrical grid in the UK and across the globe, promoting investment in clean technology. Energy efficiency and use of clean energy will be a focus for all Rolls-Royce SMR Limited facilities.
- SDG 12: Responsible Consumption and Production Supported through the design development through consideration of resource efficiency and waste minimisation throughout the life-cycle of the Rolls-Royce SMR Limited and our facilities. Partnering with suppliers to cultivate sustainable procurement practices.
- SDG 8: Decent Work and Economic Growth Supported through the creation of a safe, secure and inclusive working environment for all. Development of a Supply Chain Strategy that supports creation of decent jobs and the growth of small to medium sized businesses whilst respecting and promoting human rights.
- SDG 11: Sustainable Cities and Communities Supported through the localised production of affordable, clean energy to support decarbonisation of industry, and the electrical grid. The design of facilities and the RR SMR will minimise adverse impacts on the environment and local communities and seek to maximise beneficial impacts.
- SDG 13: Climate Action Supported through the deployment of the Rolls-Royce SMR Limited to decarbonise energy which will support the development of a more resilient and adaptive energy supply. The design of Rolls-Royce SMR Limited manufacturing facilities and the Rolls-Royce SMR Limited will account for climate adaptation measures. Improvement of education and awareness of sustainable development and climate change mitigation, adaptation and impact reduction will be supported internally and externally.
- SDG 16: Peace, Justice and Strong Institutions Supported through Rolls-Royce SMR Limited commitment to conduct ourselves fairly, transparently, and in compliance with legal and regulatory requirements and operate a zero-tolerance approach to corruption in all its forms. These values will be reinforced through collaboration with our supply chain partners.

The materiality assessment will be reviewed, to allow us to continuously improve, and ensure we meet the evolving expectations of our stakeholders.

To develop and drive our sustainability programme an Environment, Social and Governance (ESG) Working Group has been formed and is sponsored by our Safety and Regulatory Affairs Director. The working group will provide quarterly updates to our Executive Leadership Team and forms part of our business governance structure. The group is a cross functional collaboration which will provide a formal structure, helping to drive our sustainability strategy and provide a reporting mechanism for the business in this key area for 2024 and beyond.

The Rolls-Royce SMR Limited Sustainability Policy [18] sets out the company's commitment to sustainability, including environmental, social and governance commitments. The policy outlines accountability for sustainability and promotes learning and continuous improvement, as well as pressing the importance of collaboration with our partners, value chain and local communities. The approval of our sustainability policy demonstrates a commitment to developing a sustainability programme to integrate sustainability into our day-to-day operations and decision making through a balanced consideration of environmental, social, and economic impacts.



To support the implementation of the sustainability policy the following aspects continue to be developed and evolved:

- Understanding and evolving our existing environmental, social and governance baseline, including emissions baselining and future scenario modelling.
- Defining sustainability ambitions for Rolls-Royce SMR Limited and key business functions.
- Establishing SMART objectives and KPIs across the business, including science-based targets for emissions reductions to meet our commitment to net zero.
- Developing strategies to support these objectives, including a carbon reduction/ avoidance plan, social value strategy, inclusion strategy and sustainable development strategy for our future facilities.
- Development of training materials and internal and external communication plans to raise awareness and build on our mandatory training on BAT and sustainability, environmental awareness, equity diversity and inclusion, psychological safety and product safety. As well as building on our internal sustainability hub, intended to enhance our people's understanding of what we're doing as a business and where to learn more about sustainability issues.
- SMaRt culture programme.

Our sustainability programme is supported by an assurance programme which utilises a maturity model to monitor performance and support continuous improvement.



## 17.6 Conclusions

## 17.6.1 ALARP, BAT, Secure by Design, Safeguards by Design

This chapter describes the arrangements that are in place to ensure the management of E3S and quality assurance, which enables appropriate standards of E3S and quality to be applied throughout all phases of the reactor lifecycle. The application of the arrangements enables the development and management of the design and E3S Case in a manner that reduces risks to ALARP, applies BAT and ensures SbyD and safeguards by design.

## 17.6.2 Assumptions and Commitments on Future Dutyholder / Licensee / Permit Holder

## Table 17.6-1: Assumptions and Commitments on Future Dutyholder / Licensee / PermitHolder

Assumption/Commitment	ID	Description
Commitment	C17.1	The future dutyholder/licensee/permit holder shall develop the arrangements for management of E3S and Quality Assurance following the design and build phase of the design lifecycle.

## **17.6.3 Conclusions and Forward Look**

The chapter demonstrates that arrangements are in place in relation to the management of E3S and quality assurance which enable appropriate standards in support of E3S and quality to be applied throughout all phases of the reactor lifecycle. As the generic E3S Case is developed to meet its objective 'to provide confidence that the RR SMR design will be capable of delivering the E3S fundamental objective as it is developed from a concept design into a detailed design'. Further arguments and evidence to underpin the claim will be developed in line with the E3S Case Route Map [8] and reported in future revisions of the generic E3S Case.

Throughout the chapter Rolls-Royce SMR Limited have claimed that competency arrangements are in place covering all employees and embedded contractors during the onboarding process. A claim has also been made for the process of continuous improvement and right first-time measures for Engineering and E3S submissions. MSQA are sighted on a number of development and improvement activities. In order to maintain a robust audit and total assurance programme we are going to implement the following improvements

- MSQA spot checks
- Relevant risk management meetings
- Regular cross function licensing lead meetings

Rolls-Royce SMR Limited acknowledges that arrangements have been established. As the Rolls-Royce SMR Limited business continues to mature the level of governance will evolve to ensure that robust measures are in place.



The IMS arrangements, documents and procedures continue to be reviewed, evaluated, improved and updated, managed through appropriate change control governance.



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## 17.8 Appendix A: Claims, Arguments, Evidence

Table 17.8-1 provides a mapping of the claims to the corresponding sections of the chapter that summarise the arguments and/or evidence. The full decomposition of claims and link to underpinning Tier 2 and Tier 3 information containing the detailed arguments and evidence is presented in the E3S Case Route Map [8]. The route map includes the trajectory of Tier 2 and Tier 3 information as the generic E3S Case develops, which will be incorporated into Tier 1 chapters as it becomes available and in line with generic E3S Case issues described in E3S Case Chapter 1 introduction [1].

Claim	Section of Chapter 17 containing Arguments / Evidence summary
Rolls-Royce SMR Limited have implemented a robust operating model across the business, with an appropriately rigorous governance framework in place.	17.1 to 17.2.7
Rolls-Royce SMR Limited have developed an organisation designed to meet the strategic objectives of the company with appropriately competent personnel in place	17.2.1 - 17.2.3
Rolls-Royce SMR Limited have a performance culture within the business that drives us to succeed in the manner expected by the international nuclear industry	17.5.1
Rolls-Royce SMR Limited have implemented a robust integrated management system across the business, with an appropriately rigorous governance framework in place	17.1, 17.2.7
Rolls-Royce SMR Limited have developed a robust project and programme management organisation, with an appropriately rigorous governance framework in place	17.2.5
Rolls-Royce SMR Limited have developed a Total Assurance Model which enables a systematic, disciplined approach to comprehensively review compliance to internal and external standards.	17.2.6
E3S Cases are generated and governed in a way that allows us to confirm the Rolls-Royce SMR design has reduced risk from all sources so far as is reasonably practicable, is secure by design, safeguards by design and has used best available techniques to demonstrate the impact to the environment has been minimised	17.3

#### Table 17.8-1: Mapping of Claims to Chapter Sections



Claim	Section of Chapter 17 containing Arguments / Evidence summary
Changes to design are generated and governed in a way that ensures design change is managed through a clearly defined engineering organisation, which make use of a variety of technical and engineering methods and governed through appropriate engineering governance	17.3.2, 17.3.3



## 17.9 Abbreviations

AC	Assumptions and Commitments
ALARA	As Low as Reasonably Achievable
ALARP	As Low as Reasonably Practicable
ASCE	Assurance and Safety Case Environment
ASME	American Society of Mechanical Engineers
BAT	Best Available Techniques
CAE	Claims, Arguments, Evidence
CEO	Chief Executive Officer
CFSI	Counterfeit, Fraudulent and Suspect Items
CV	Curriculum Vitae
DoA	Delegation of Authority
DL	Document List
DPA	Data Protection Act 2018
DR	Design Reference
DRP	Design Reference Point
DSEAC	Design, Safety and Environment Advisory Committee
E3S	Environment, Safety, Security and Safeguards
EA	Environment Agency
ELT	Executive Leadership Team
EPRI	Electric Power Research Institute
FCD	Final Concept Definition
FOAF	First of a Fleet
GDA	Generic Design Assessment
GDPR	General Data Protection Regulation 2018
GER	Generic Environment Report



GR	Gated Review
GSR	Generic Security Report
HSEQ	Health, Safety, Environment and Quality
HSSEC	Health, Safety, Security, Environment and Culture
IAEA	International Atomic Energy Agency
IEC	International Electrotechnical Commission
IMS	Integrated Management System
IPR	Independent Peer Review
ISO	International Organization for Standardization
KM	Knowledge Management
KPI	Key Performance Indicator
MDSL	Master Document Submissions List
MR	Maturity Review
MRI	Master Records Index
MSA	Managed Service Agreement
OLC	Operational Limits and Conditions
ONR	Office for Nuclear Regulation
PCSR	Pre-Construction Safety Report
PDCA	Plan, Do, Check, Act
РМО	Programme Management Office
PMP	Project Management Plan
PSA	Probabilistic Safety Assessment
QA	Quality Assurance
RD	Reference Design
RDS-PP	Reference Designation System - Power Plants



REDV	Requirements, Evidence, Design Definition, Verification and Validation
RI	Regulatory Issue
RO	Regulatory Observation
RP	Requesting Party
RQ	Regulatory Query
RR SMR	Rolls-Royce Small Modular Reactor (Design)
Rolls- Royce SMR Limited	Rolls-Royce Small Modular Reactor (Organisation)
RSR	Radioactive Substances Regulation
SAP	Safety Assessment Principle
SDG	United Nations Sustainable Development Goals
SoW	Statement of Work
SMSR	Supplier Management System Requirements
SSC	Structure, System and Component
SyAP	Security Assessment Principle
SByD	Secure-By-Design
TCR	Technical Change Review
UK	United Kingdom
UN	United Nations
WANO	World Association of Nuclear Operators
WNA	World Nuclear Association