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| Role | Name | Position | Signature | Date | CM9 reference for review |
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| Issue No.: | Date | Author(s) | Reviewed By | Accepted By | Description of Change |
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Table 4: Circulation list

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| --- | --- |
| Organisation | Name |
| ONR | Sizewell C Team |
| EA | Lead Regulator |
| NNB GenCo (SZC) Ltd  | Regulatory Interface Office |

New Reactors Division

Sizewell C New Build Project

**Conventional Health and Safety and Life Fire Safety Assessment of an application by NNB Generation Company (SZC) Ltd for a Nuclear Site Licence**

Assessment Report Ref.: ONR-NR-AR-22-007

Issue No: 1

Date: April 2023

# Executive Summary

This report presents the Office for Nuclear Regulation’s (ONR) assessment findings of the Conventional Health and Safety (CHS) and Life Fire Safety cornerstone as detailed in the “Sizewell C new build project, ONR strategy up to licence grant”. This assessment is part of the overall assessment which supports a decision by the Chief Nuclear Inspector (CNI) as to whether a Nuclear Site Licence (NSL) should be granted to NNB Generation Company (SZC) Ltd (NNB GenCo (SZC) Ltd).

NNB GenCo (SZC) Ltd is the prospective licensee for a proposed nuclear power station comprising two UK (EPRTM) reactors at Sizewell C (SZC) in Suffolk. This report considers the arrangements that NNB GenCo (SZC) Ltd has in place to fulfil its client duties as set out in the Construction (Design and Management) Regulations 2015 (CDM2015), to ensure that there are suitable arrangements in place so that as the project evolves it is carried out in a way that manages health and safety risks. Compliance with the Regulatory Reform (Fire Safety) Order 2005 (RRO) is relevant during the construction and operation of the nuclear power plant and as SZC will be replicated from Hinkley Point C (HPC) assessment in this area has been limited.

The key assessment activities underpinning this report were carried out by interventions and meetings which have been held over the last year. The purpose of these interventions was to gain assurance that NNB GenCo (SZC) Ltd has met its responsibilities at this early pre-construction phase of the project and has an understanding of how the CDM2015 strategy and arrangements will mature as the site evolves. This assessment also draws on the significant cross cutting interventions carried out by ONR as part of delivery of its Integrated Intervention Plan.

The assessment found that NNB GenCo (SZC) Ltd as the CDM2015 client has demonstrated:

an adequate understanding of the CDM2015 requirements including roles and responsibilities;

there are suitable arrangements in place for the current phase of the project to ensure legal compliance;

that the range and scope of pre-construction information is understood;

the requirements of the content of a construction phase plan are understood; and

that steps have been taken to ensure that those working on the project have the skills, knowledge and experience to fulfil the roles that they are appointed to undertake, in a manner that secures the health and safety of any person affected by the project.

I am satisfied that NNB GenCo (SZC) Ltd has demonstrated sufficient appreciation, understanding and application of CDM2015.

Fire safety arrangements are replicated from HPC which have been assessed previously as being compliant with the RRO.

**Recommendations**

* **Recommendation 1**: Based on the evidence assessed for NNB GenCo (SZC) Ltd’s arrangements in accordance with the Construction (Design and Management) Regulations 2015, I have not identified any shortfalls which would prevent ONR granting the nuclear site licence to NNB GenCo (SZC) Ltd for the Sizewell C site.
* **Recommendation 2**: Based on adequate implementation of intelligent replication from the Hinkley Point C site, for the application of fire safety arrangements in accordance with the Regulatory Reform (Fire Safety) Order 2005, ONR should issue the nuclear site licence to NNB GenCo (SZC) Ltd for the Sizewell C site.

# List of Abbreviations

ACoP Approved Code of Practice
AD Associated Development sites

ALARP As low as is reasonably practicable

AR Assessment report
CCNSG Client Contractor National Safety Group

CDM Construction (Design and Management) Regulations 2015
CDMA CDM Advisor
CHS Conventional Health and Safety

CNI Chief Nuclear Inspector
CPP Construction Phase Health and Safety Plan
CWA Civil Works Alliance

DRR Design Risk Register
EDF Electricite de France
EDRMS Electronic document and record management system

EPRTM The generic design of pressurised water reactor submitted for GDA

FID Financial Investment Decision

GB Great Britain

HOW2 ONR’s Management System Platform

HP Cooling Water Pumphouse at HPC

HPC Hinkley Point C

HSE Health and Safety Executive

HSWA Health and Safety at Work etc Act 1974
IMS Integrated management system
INA Internal nuclear assurance

IST Industrial safety team

LC Licence Condition
LfMS Leadership for management and safety

MHSWR Management of Health and Safety at Work Regulations 1999
NCC No Change Committee
NNB New Nuclear Build
NNB GenCo NNB Generation Company (SZC) Ltd

NOAK Next of a Kind

NSA Nuclear Skills Alliance

NSL Nuclear Site Licence
OHS Occupational health and safety

ONR Office for Nuclear Regulation

PAR Project Assessment Report
PC Principal Contractor

PD Principal Designer

PDO Project Delivery Organisation

RGP Relevant Good Practice

RI Regulatory Issue

RRO Regulatory Reform (Fire Safety) Order 2005

SAP Safety Assessment Principle(s)

SFAIRP So far as is reasonably practicable

SHE Safety, health and environment

SQEP Suitably qualified and experienced persons

SSSI Site of Special Scientific Interest

SZC Sizewell C

TAG Technical Assessment Guide(s) (ONR)

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Introduction

## Background

1. This report presents the findings of the assessment of the conventional health and safety and life fire safety cornerstone. The assessment was undertaken in accordance with the requirements of the Office for Nuclear Regulation (ONR) How2 Business Management System.
2. NNB Generation Company (SZC) Ltd (NNB GenCo (SZC) Ltd) applied to ONR on 30 June 2020 for a nuclear site licence (NSL) to construct and operate a nuclear power station comprising two UK (EPRTM) reactors at Sizewell C (SZC) in Suffolk.
3. To reduce costs and project uncertainty, NNB GenCo (SZC) Ltd’s strategy for SZC is to derive value from a “Next of a Kind” (NOAK) project. This includes duplicating, wherever possible, the Hinkley Point C (HPC) plant and arrangements and adopting a systematic approach to capturing, quantifying and applying lessons learned to SZC. Further details on ONR’s assessment of the replication strategy for SZC can be found in “Strategy Paper – New Reactor Construction- Sizewell C- Replication Assessment Strategy” [1].
4. ONR’s “Licensing Nuclear Installations” publication [2] provides guidance on the licensing process and the factors that ONR may take into account when reviewing an NSL application. The guidance details the approach that ONR will take to assess the NNB GenCo (SZC) Ltd licence application to inform a decision by the Chief Nuclear Inspector (CNI) on granting a licence.
5. A Project Assessment Report (PAR) will collate the views of ONR’s specialist assessors on NNB GenCo (SZC) Ltd’s readiness to become a nuclear site licensee.
6. NNB GenCo (SZC) Ltd will need to raise the appropriate level of capital from the financial market to construct and operate the project. The Financial Investment Decision (FID) is not expected until later in 2022 and as such this report is cognisant of the maturity of the project. It should be noted construction work on site is currently low risk and is presently limited to geotechnical, ecological, archaeological and topographic investigations and surveys with small numbers working on site from portacabin offices.
7. As the project is at an early stage the arrangements will evolve, develop and in some areas change as the project matures. The purpose of previous engagements and this report is to gain confidence that NNB GenCo (SZC) Ltd understands the requirements of Construction (Design and Management) Regulations 2015 (CDM2015) and will review and maintain the arrangements as the site evolves. The RRO places duties on the employer, as the “responsible person”, to ensure adequate measures are in place to protect life safety from fire. These duties apply during the construction phase of the building in addition to normal completed occupation and any maintenance activity. Fire safety arrangements were assessed at HPC and in line with intelligent replication principles being applied from HPC, assessment of the fire arrangements at SZC has been limited and this will be an ongoing area of regulatory focus as the construction work increases.
8. At the time of writing this report, the Health and Safety Executive (HSE) presently has vires for the site. With the establishment of ONR as a separate statutory regulator, responsibility for regulating conventional safety activities within nuclear sites and nuclear construction sites will be transferred to the ONR upon granting of the Nuclear Site Licence (NSL).
9. The HSE will retain vires for those elements of the SZC project which fall outside of the ONR vires. This involves offshore works and the Associated Development (AD) sites which includes new road and rail schemes, local highways improvements, park and ride sites and a freight management facility.

Scope

1. The scope of this report covers an assessment of the project’s CDM2015 arrangements, led by NNB GenCo (SZC) Ltd as the CDM2015 client. CDM2015 apply to the whole of the construction process from concept through to completion. The ONR Strategy up to licence grant [3] details that during the licensing phase it will review the project CDM2015 management arrangements and this assessment includes:

(i) ensuring that NNB GenCo (SZC) Ltd as the CDM2015 client has suitable arrangements in place for managing a project and maintaining and reviewing these arrangements;

(ii) duties of the principal designer and designer at the pre-construction phase to ensure in the preparation and modification of the design that foreseeable risks are eliminated, reduced or controlled;

(iii) steps taken to ensure that those working on a project have the skills, knowledge, experience and training and, if they are an organisation, the organisational capability necessary to fulfil the role that they are appointed to undertake, in a manner that secures the health and safety of any person affected by the project;

(iv) determination of where the boundary of the wider construction site (the New Nuclear Build Site, as defined in the Enforcing Authority Regulations 1998) is drawn; and

(v) The replication approach from HPC in relation to the requirements of the Regulatory Reform (Fire Safety) Order 2005.

## Methodology

1. The methodology for assessment follows ONR’s guidance on the mechanics of assessment, NS-TAST-GD-096 [4].
2. This assessment has been focussed primarily on gaining assurance that NNB GenCo (SZC) Ltd has met its responsibilities as a CDM2015 client and has suitable arrangements in place as the project evolves. NNB GenCo (SZC) Ltd has also taken the role of principal designer (PD) and principal contractor (PC) at this stage of the project. However, these roles, notably the PC role (and to a lesser extent the PD role) will be undertaken by others as the project evolves and further regulatory attention will be required once the new dutyholders are (or about to be) appointed.
3. This assessment report mirrors ONR’s established assessment procedures for safety cases (Safety Assessment Principles for Nuclear Facilities. 2014 Edition, Revision 1. January 2020 [5]), and applies them to the relevant statutory provisions, recognising that relevant statutory provisions under the Health and Safety at Work etc Act 1974 (HSWA) and the Regulatory Reform (Fire Safety) Order 2005 (RRO), do not form part of the permissioning regime. The assessment report considers whether NNB GenCo (SZC) Ltd’s current and proposed arrangements meet legal compliance in the context of a goal setting regulatory regime.

Assessment Strategy

The intended assessment strategy for conventional health and safety is set out in this section. This identifies the scope of the assessment and the standards and criteria that have been applied. It contributes to and is consistent with the overall ONR strategy. The assessment has been primarily based on the output of interventions, meetings and assessment of key documentation.

Standards and Criteria

The relevant standards and criteria adopted within this assessment are principally Great Britain (GB) health and safety legislative requirements, plus documented sources of good practice. This includes HSE Approved Codes of Practice (ACoPs), and HSE guidance on legal standards, available at ww.hse.gov.uk. HSE sets the strategy, policy and legal framework for conventional health and safety in GB. Relevant good practice, where applicable, has also been cited within the body of the assessment.

Relevant Legislation

1. The key pieces of GB health and safety legislation which have been referenced to this assessment include:

The Health and Safety at Work etc. Act 1974 (HSWA), as the primary piece of legislation covering occupational health and safety in GB, sets out the general duties, qualified by the term “*so far as is reasonably practicable*”;

the Management of Health and Safety at Work Regulations 1999 (as amended) (MHSWR99) detail the actions required to manage health and safety risk for every work activity, inter alia requiring that a suitable and sufficient risk assessment is produced. It is essential that due regard be given in design to the general principles of prevention referenced at Regulation 4 and Schedule 1 when deciding which preventive and protective measures to take;

the Construction (Design and Management) Regulations 2015 (CDM2015). These Regulations cover the management of health, safety and welfare when carrying out construction projects; and

the Regulatory Reform (Fire Safety) Order 2005 (RRO).

1. The following Technical Assessment Guides (TAGs) has been used as part of this assessment:
* ONR-TAST-GD-096 – Guidance on Mechanics of Assessment

Guidance

1. HSE guidance is available which assists in interpreting health and safety legal requirements, legal compliance and offers technical advice. Following HSE guidance will normally be sufficient to achieve legal compliance, however, guidance is not compulsory and dutyholders may take other, equally equivalent action.
2. The guidance to the CDM2015 Regulations, “Managing health and safety in construction” L153 [6] is particularly relevant to this assessment.

## Integration with Other Assessment Topics

1. There is overlap with other areas, particularly the assessment reports (AR) for Organisational Capability (ONR-NR-AR-22-010) [7], Site Activities and Licence Compliance (ONR-NR-AR-22-009) [8]. The SZC Replication Strategy [9] is also relevant.

## Out of Scope Items

1. Conventional health and safety covers a wide range of topics and legislation, and this report is mainly limited to the arrangements required for CDM2015.The RRO applies to the construction phase of the building and as intelligent replication principles have been applied at SZC, the assessment of the fire arrangements at SZC has been limited.

# Licensee’s Safety Case

1. N/A

# ONR Assessment

Scope of Assessment Undertaken

1. The scope of the assessment covers the adequacy of NNB GenCo (SZC) Ltd’s CDM2015 arrangements as the CDM2015 client to ensure that they are developing sufficiently (see paragraph 10).

## Assessment

1. The key assessment activities underpinning this report were carried out as part of CHS1 and CHS2 interventions [7]. The interventions looked particularly at how the client was making suitable and sufficient arrangements for the project and also assessed PD and PC arrangements. To supplement this assessment, I accompanied the Leadership for Management and Safety (LfMS) inspector to intervention I-OC5 Training, SQEP and Appointments – competency management arrangements and I-OC6 – Training, SQEP and Appointments implementation of arrangements [8]. Regular Level 4 engagements also supported the interventions.
2. This assessment considers the arrangements for the client, PD and PC and the assessment looks at each of these dutyholders in turn. It should be noted that as the project evolves the PC and to a lesser extent the PD roles will be undertaken by different organisations, so the focus of this report is on the client duties in relation to managing projects.
3. As part of the intervention the following information is relevant:

Company Manual [9];

Sizewell C – Health and Safety Policy [10];

Sizewell C Construction Phase Health and Safety Plan [11] ;

CDM Principal Designer Execution Strategy [12];

Principal Contractor Transition Plan [13];

SZC Overarching CDM Strategy [14];

SZC CDM Strategy (Version 1); [15]

SZC CDM Strategy (Version 2) [16];

CDM Client Standard [17];

CDM Designer and Principal Designer Standard [18];

CDM Contractors and Principal Contractor Standard [19];

LC19 Arrangements [20];

Agenda and CHS1 and CHS2 intervention requirements [21];

HP Cranes Low Overhead Clearance ALARP Study [22];

Replication Assessment Strategy [1];

SZC Replication Principles [23];

SZC Project Replication Manual [24]; and

Project Execution Plan [25].

1. The overarching ‘CDM Strategy’ [14] details the overall CDM2015 arrangements for the SZC project and sets out roles and responsibilities through the project lifecycle. SZC will be delivered applying principles of intelligent replication of the HPC Project. It is recognised that CDM2015 should be built into the model for delivery from the start to ensure full consideration of CDM2015. The strategy details lessons learnt from a CDM2015 perspective, the recommended approach and some key differences from HPC.

Client Arrangements

1. Experience has shown that the best performing projects are those where there is a clear commitment from the client and where those standards are consistently applied and monitored across the project. The client was assessed in line with Regulation 4 of CDM2015 to ascertain how it would discharge and propose to discharge its duties to manage the project to ensure the health, safety and welfare of those involved. The objectives of the assessment are to seek assurance that:

suitable arrangements have been made for managing the project;

appropriate appointments have been made and that there is a clear commitment to ensuring and developing the competence of all workers; and

pre-construction information has been produced and provided to relevant dutyholders.

1. The guidance to the CDM2015 regulations (L153) paragraph 31 [6], determines that the arrangements should include:

“(a) assembling the project team – appointing designers (including a principal designer) and contractors (including a principal contractor);
(b) ensuring the roles, functions and responsibilities of the project team are clear;
(c) ensuring sufficient resources and time are allocated for each stage of the project – from conception to completion;
(d) ensuring effective mechanisms are in place for members of the project team to communicate and cooperate with each other and coordinate their activities;
(e) how the client will take reasonable steps to ensure that the principal designer and principal contractor comply with their separate duties. This could take place at project progress meetings or via written updates;
(f) setting out the means to ensure that the health and safety performance of designers and contractors is maintained throughout;
(g) ensuring that workers are provided with suitable welfare facilities for the duration of construction work.”
2. As the project is still at the pre financial investment decision (pre-FID) the client arrangements as described above are not fully developed and this assessment has looked at the proposals and intent. Some of these aspects will need to be sampled and assurance gained post financial investment decision (post-FID).
3. The arrangements are described starting with a statement of intent described in ‘The Company Manual’ [9], section 10.1. This describes that the Industrial Safety function is “to ensure that the arrangements and performance of the project organisation and the supply chain are compliant with the requirements of the Health and Safety at Work Act and associated legal requirements”. It states “the team will ensure that the requirements of the Construction (Design and Management) Regulations throughout the design, construction, and commissioning phases of the SZC Project are fully addressed.”
4. ‘The Project Execution Plan’ (PEP) [25] details the project outline, SZC client and delivery organisation. The delivery model for SZC will be around three defined layers:

The client who is responsible for the Overall Project Assurance;

A Project Delivery Organisation (PDO) responsible for the integration, co-ordination and acceptance across the delivery Programmes and project lifecycles; and

* Programmes responsible for the delivery of the project (from design through procurement, construction and commissioning to the transfer for plant operations).
1. The client’s purpose is defined in the ‘CDM Client Standard’ [26] An observation that the PEP [25] concentrated on nuclear safety was made by ONR and I understand that the document has been updated to also align industrial safety.
2. An ‘Overarching CDM Strategy’ [14] has been developed which is supported by further documents (a combination of revision 1 and revision 2[16] [17]) which confirms the overall CDM2015 arrangements for SZC. It is proposed that SZC will be delivered applying the principles of intelligent replication of the HPC project. However, there are some key differences from HPC which could affect the approach to CDM2015 arrangements including EDF being a minority shareholder.
3. ‘The CDM Strategy’ [14] details key lessons learnt from HPC and other major projects. It has identified that the CDM2015 arrangements for HPC, where NNB GenCo (HPC) Ltd fills all the CDM2015 roles, will not be replicated for the SZC project recognising that “some projects may be too large or complex for a single organisation to handle the role of the PC on its own.” The strategy identifies NNB GenCo (SZC) Ltd as the CDM2015 client with a strong project oversight. This will apply pre and post FID. For relocated facilities and work taking place on Sizewell B (SZB) land within the SZB nuclear licensed site boundary, SZB will undertake all CDM2015 roles. There may be other elements of the project where the owner will be another party e.g. the National Grid.
4. To determine if suitable arrangements have been made for managing the project, the following paragraphs assess against the CDM2015 guidance in L153 [6] (paragraph 31, above).
	* + 1. (a) Assembling the project team
5. NNB GenCo (SZC) Ltd in its capacity as the client has engaged a CDM advisor (CDMA) who advises on design and construction aspects. Regulation 7 of the MHSWR99 provides that employers can draw on advice from a competent person. I view this appointment as positive as NNB GenCo (SZC) Ltd has appointed a competent person at an early stage of the project to provide advice on CDM2015. As the project evolves it is proposed that this advisory position will be relocated to the client project assurance team so that in addition to advising, the role will incorporate oversight activities on behalf of the client.
6. NNB GenCo (SZC) Ltd is replicating the project arrangements from HPC. The Industrial Safety Team (IST) will provide leadership for the development and effective implementation of policy and standards. The IST will ensure that arrangements are compliant with the requirements of HSWA and the team has the responsibility for ensuring that CDM2015 is fully addressed. There have been lessons learned from HPC and some key CDM2015 dutyholders will be different from HPC. The key CDM2015 dutyholders are presented in the ‘CDM Strategy’ [14]. At HPC the client has chosen to adopt the functions of client, PD and PC. The HPC position of adopting all CDM roles will not be replicated at SZC as the overarching ‘CDM Strategy’ [14] acknowledges that different and additional personnel and skills than those originally anticipated at HPC will be required and that the SZC team can benefit from the established supply chain that HPC has created.
7. NNB GenCo (SZC) Ltd has developed a number of company standards that define the CDM arrangements, set expectations and define the requirements. The ‘CDM Client Standard’ [26] document details the client’s arrangements for discharging its CDM2015 duties and defines how all CDM dutyholders working on the client’s projects will comply with CDM2015. These company documents are included in the Integrated Management System (IMS) and held on the Electronic Document and Record Management System (EDRMS). Other organisations fulfilling CDM2015 dutyholder roles are required to have their own written arrangements setting out how they meet their responsibilities under CDM2015.
8. The client will minimise delivery through strategic interfaces and plans to establish a PDO to manage and integrate the SZC project. A key lesson learnt from HPC and other major projects is the *“*delineation of Client duties from PC and project delivery responsibilities is beneficial and enables the Client to better focus on robust specification of requirements and dealing with critical issues within their skill set (my underlining) such as those relating to nuclear safety and overall project performance” (paragraph 6.4 -Learning Summary from Benchmarking -Overarching CDM Strategy [15]). A presentation of the PDO was provided on 21 January 2022 [27]. NNB GenCo (SZC) Ltd will be responsible for specifying requirements and assurance of delivery within the client organisation, the PDO will act as the delivery team. It is proposed that within the PDO there will be three programmes for delivery of the project which are the nuclear island, conventional island and balance of plant and civil works. One of its key responsibilities will include management of interfaces between programmes. It is envisaged that the PDO will support the client and act as a project integrator, discharging some of the client’s duties as the client’s agent. The client will provide overall assurance and oversight, whilst the PDO will be responsible for the overall delivery. NNB GenCo (SZC) Ltd has recognised that as the client it may not have the skillset for managing the construction project and has recognised that it needs this additional function. A PDO or client’s agent is not a named dutyholder in CDM2015 and as the PDO model is not yet established, what duties and how these duties will be discharged will be subject to future ongoing regulatory engagement.
9. For relocated facilities and work taking place on SZB land within the SZB nuclear licensed site boundary, I have been informed that SZB will act as client and be responsible for appointing CDM dutyholder roles. These are detailed in extant arrangements. There may be other elements of the project where the client will be another party e.g. the National Grid.
10. The PD is the designer with control over the pre-construction phase of the project and can be an organisation or individual that has technical knowledge of the construction industry and the necessary skills and knowledge. The PD at present is SZC, represented by The Technical Programme Director within the Engineering and Delivery Team. This position is also the responsible link with the EDF Technical Client Organisation (TCO). It is proposed that as the project evolves the PD role will be the PDO which is yet to be fully developed (with only the basic infrastructure currently in place).
11. The PC will be NNB GenCo (SZC) Ltd for the pre-enabling works phase (i.e. the current phase of investigatory works). However, for the construction phase (which starts with enabling works and site establishment), it is proposed that the PC role will be delivered by a delivery alliance for each delivery programme, the first being the Civil Works Alliance which will include NNB GenCo (SZC) Ltd. It is anticipated by NNB GenCo (SZC) Ltd that for commissioning the PC role will return to NNB GenCo (SZC) Ltd.
12. Key to assembling the project team to manage the project is ensuring that the management arrangements are clear and what the client will do to ensure that the people and organisations they appoint have the skills, knowledge and experience and if they are an organisation the organisational capacity. The organisational capability assessment has assessed the management arrangements for organisational development, future resourcing, roles and responsibilities in line with Licence Condition 36. This assessment addresses the CDM2015 requirements and those required by the MHSWR99, regulation 5(1). The ‘CDM Client Standard’ [26] supplements ‘The Company Manual’ [9] which NNB GenCo (SZC) Ltd has adopted as the Safety Management Prospectus (SMP). The ‘CDM Client Standard’ [26] sets out a high-level statement in Section 3.13 regarding competency: “The Client will take reasonable and proportionate steps to satisfy itself that those it appoints to carry out design and construction work have the skills, knowledge and experience, and where they are an organisation, the organisational capability to carry out the work in a way that secures health and safety. Organisational capability means the acceptable H&S policies and system an organisation has in place to set standards which comply with the law, and the resources and people to ensure the standards are delivered*.”* Organisation capability has been the subject of a separate assessment report. (ONR-NR-AR-22-010 – Organisational Capability Assessment of an application by NNB GenCo (SZC) Ltd for a Nuclear Site Licence) [7].
13. Clients appointing a designer or contractor to work on a project must take reasonable steps to satisfy themselves that those who will carry out the work have the skills, knowledge and experience. Contractor procurement will be carried out by NNB GenCo (SZC) Ltd in accordance with NNB GenCo (SZC) Ltd procedures. The NNB GenCo (SZC) Ltd Company Procedure “Manage Industrial Safety Evaluation” (Version 1) [28] details how NNB GenCo (SZC) Ltd proposes to assess the health and safety of its supply chain. (It should be noted that this document is dated 14 September 2012 and it does not reflect the latest CDM2015 regulations and the capability statement (see later) is not detailed in this document. The CDMA has advised that this document will be updated in due course). The document describes how NNB GenCo (SZC) Ltd undertakes an evaluation of contractors’ occupational health and safety (OHS) procedures. Health and safety questionnaires are issued to all potential contractors and completed questionnaires are evaluated by the IST. The IST determines its OHS risk and performance capability against set descriptors.
14. The replication strategy has already checked the competency for equipment suppliers. However, designers and contractors will be required to submit a capability statement. At this stage of pre-licensing there are investigation works and surveys being undertaken on site and contractor works are limited. Appendix A in the NNB GenCo (SZC) Ltd document “CDM Designer and Principal Designer Standard” (SZC-NNBGEN-XX-000-COD-100009) [29] details what is to be included in an example capability statement. An example, of a capability statement by Atkins Ltd was provided [30] (CM9: 2022/11250). This demonstrates compliance against Atkins Ltd own Suitably Qualified and Experienced Persons (SQEP) and capability validation against Appendix A and serves to illustrate the knowledge, experience and skills of the team in relation to CDM.
15. The Employees Affairs Unit (EAU) which will be established at SZC will manage the competency of construction workers and will be linked to gaining site access. The generic site worker training requirements are being drafted with the support of the Nuclear Skills Alliance (NSA). The construction workforce strategy has been incorporated into the NNB GenCo (SZC) Ltd (SZC) resource strategy and a further long-term strategy will be developed going forward.
16. CDM awareness training is a mandatory course for NNB GenCo (SZC) Ltd employees. Directors also undertake CDM awareness training as part of the onboarding process. There is also a CDM awareness training course specific to designers.
	* + 1. (b) Ensuring the roles, functions and responsibilities of the project team are clear
17. One of the key lessons learnt from HPC is the importance of understanding roles and responsibilities. The client has developed a number of company standards that define the CDM arrangements, set expectations and define requirements for how CDM2015 will be complied with including the ‘CDM Designer and Principal Designer Standard’ [29] and the ‘CDM Contractor and Principal Contractor Standard’ [31]. The PEP [25] provides an over-arching intent of the management arrangements that NNB GenCo (SZC) Ltd will employ to ensure that that the people and organisations that they appoint will have the skills, knowledge, experience and if they are an organisation the organisational capability to manage health and safety risks. The organisational capability assessment report has assessed these aspects in more detail.
	* + 1. (c) Ensuring sufficient resources and time are allocated for each stage of the project – from conception to completion
18. The client and PDO will ensure that the integrated work schedule for the project defines the amount of time allocated and the resources expected by the work packages. Time allocation will be communicated by contracts and regular progress meetings with the client and PDO.
	* + 1. (d) Ensuring effective mechanisms are in place for members of the project team to communicate and cooperate with each other and co-ordinate their activities
19. NNB GenCo (SZC) Ltd has stated that it will ensure that effective mechanisms are in place for communication and co-operation between the project team and will replicate the same governance arrangements as HPC. Regarding governance the same approach will include the NNB GenCo (SZC) Ltd Board, the project board, interface meetings, no change committee for design decisions, design review and progress meetings, construction progress meetings and safety walkdowns. The extant construction phase plan (section 6.4) [11] details how communication and consultation is occurring on the site.
	* + 1. (e) How the client will take reasonable steps to ensure that the principal designer and principal contractor comply with their separate duties
20. It is intended that the client’s IST will audit the PD and PC and the expectations of the duties are detailed in the ‘CDM Client Standard’ [26]. The PDO will be responsible for monitoring the delivery of the work and provide assurance back to the client. The Internal Nuclear Assurance team (INA) will also be employed to monitor and feedback on site conventional health and safety standards.
	* + 1. (f) Setting out the means to ensure that the health and safety performance of designers and contractors is maintained throughout
21. ‘The SZC CDM Contractor and Principal Contractor Standard’ [31] details the expectations and requirements for the way in which the PC and contractor duties are discharged. The monitoring of onsite performance is outlined in the ‘Principal Contractor’s Construction Phase Plan’ (CPP) (section 6.3) [11]. I have been told this includes a schedule of planned site inspections to monitor health and safety performance and weekly site tours conducted by the PC’s site team and formally recorded. NNB GenCo (SZC) Ltd will measure both weekly and monthly statistical returns.
	* + 1. (g) Ensuring that workers are provided with suitable welfare facilities for the duration of construction work
22. The SZC ‘CDM Contractor and Principal Contractor Standard’ [31] outlines the expectations for welfare facilities on site. Welfare facilities will be incorporated into the construction site plot plans and the client will ensure that suitable welfare facilities are provided in line with the Client’s Standard OHS requirements and ensuring that the PC details the expectations in the CPP [11]. The extant CPP (section 6.10) outlines the welfare facilities on site.

**Provision of pre-construction information**

1. In accordance with Regulation 4(4) of CDM2015, the client must provide pre-construction information as soon as practicable to every designer and contractor appointed. The ‘CDM Client Standard’ [26] describes pre-construction information and the process for liaising with the PD. Under NNB GenCo (SZC) Ltd arrangements for the PD role the CDMA also advises and supports the PD.
2. Examples of pre-construction information were provided including the site hazard plan [32] which seeks to collate all the hazards and utilities into one single plan. A pre-construction information template has been produced for use across the project [33]. The On-shore Geotechnical Investigation Pre-Construction Information SZ0100-108 [34] is an example of how information will be provided to contractors using a standard NNB format. Schedule B of the document refers to a schedule of existing information and drawings and Schedule C refers to a schedule of surveys and investigations.
3. A design risk register (DRR) [38] for the enabling works identifies construction and excavation being the main activities with the hazards being flooding, contaminated ground, unexploded ordnance, and underground service strikes. An example, on page 15 of this document, regarding the hazard of a collision between train and on-site vehicles where a section of the road has to be shared between the road and rail was given as an example of how the design team has reduced the risk via design.
4. The extant CPP (section 5.12) [35] details pre-construction information which is available on the client’s EDRMS. The CPP states that “NNB GenCo (SZC) Ltd are not aware of areas of known asbestos contaminated land on site”. However, the ‘Land Quality Management Arrangements’ [36] states“The northern mound comprises re-worked sand and gravel and Made Ground (rubble/gravel) from the construction of the SZB power station which may include a range of metal and inorganic contaminants including asbestos fibres or asbestos containing materials (ACM). Organic contaminants such as hydrocarbons, may also be present locally.” Further regulatory attention is required to ensure that information in existing documents is captured and passed to other dutyholders as part of pre-construction information. This will be reviewed as part of future regulatory engagement.

**Conclusion**

1. I consider from the evidence sampled that NNB GenCo (SZC) Ltd as the CDM2015 client has suitable arrangements in place for managing a project and maintaining and reviewing these arrangements.
2. I consider that from the evidence sampled that NNB GenCo (SZC) Ltd as the CDM2015 client has suitable arrangements in place to ensure that those working on a project have the skills, knowledge and experience and, if they are an organisation, the organisational capability necessary to fulfil the role that they are appointed to undertake, in a manner that secures the health and safety of any person affected by the project.
3. Based on the evidence sampled for the provision of pre-construction information, I consider that NNB GenCo (SZC) Ltd has suitable arrangements in place for collating and communicating pre-construction information. However, this will be part of future regulatory focus.

**Principal Designer Arrangements**

1. Guidance to the CDM Regulations (L153) requires that PDs should:

Plan, manage, monitor and co-ordinate the pre-construction phase;

Identify, eliminate or control foreseeable risks;

Ensure co-ordination and co-operation; and

Provide pre-construction information.

* + - 1. Plan, manage, monitor and co-ordinate the pre- construction phase
1. ‘The CDM Designer and Principal Designer Standard’ [29] sets out NNB GenCo (SZC) Ltd’s overall expectations and requirements for the way in which PD and designer arrangements are to be fulfilled on new nuclear build projects. A requirement of this standard is to produce a Principal Designer Execution Strategy. The client has defined in the PD Standard [29] what is to be expected from the PD and the design teams in terms of steps they should reasonably take to ensure that their designs help manage foreseeable health and safety risks during construction, maintenance, operation, decommissioning and demolition. The PD role is presently represented by the Technical Programme Director. NNB GenCo (SZC) Ltd stated that the intent will be for the PDO to undertake the PD role (with support from the Technical Client Organisation and Technical Services Organisation as needed) for the main site works. For low risk, non-nuclear sites outside the licensed nuclear site, respective designers will act as the PD, with oversight from the PDO. A presentation was provided which gave an overview of the PD Arrangements [37].
2. The PD has a responsibility to ensure that any designers it appoints have the sufficient skills, knowledge, experience and (if they are an organisation) the organisational capability to carry out the work. The designers present at the intervention CHS1 and CHS2 showed a good working knowledge of CDM2015. CDM 2015, Regulation 8 requires that designers must have skills, knowledge and experience to fulfil the role. On appointment designers submit to the client and PD a design capability statement that shows details of CDM2015 training. Designers in the engineering team have attended a CDM2015 awareness course and I understand that there is specific training for designers that is to be rolled out to ensure a consistent approach.
	* + 1. Identify, eliminate or control foreseeable risks
3. The intention is to replicate the HPC design. The Intelligent Replication Principles are described in the PEP [25], ‘The SZC Replication Principles’ [23] and the ‘SZC Project Replication Manual’ [24]. The SZC safety case will provide the necessary safety justifications for the replication of the HPC design. The replication strategy is based on duplicating the final HPC design used for construction and erection. The replication strategy has been the subject of an ONR/Environment Agency L4 workstream and will be subject to an assessment report. A key point is that previous tenderers who have worked at HPC, are being asked whether they envisage changes to the risk assessment, mitigation measures and residual risks recorded within the HPC Design Risk Registers (DRR). Any features that are not replicated from HPC due to a change in the SZC parameters will be identified. HPC is developing a Building Hazards Register which collates all pertinent design information and information from DRRs and this will be used by NNB GenCo (SZC) Ltd. Additionally, NNB GenCo (SZC) Ltd is using Building Information Modelling (BIM) which shows the sequence of construction and the BIM will be used for managing interfaces.
4. There is a No Change Committee (NCC) in place to review and approve deviations from the initial HPC design. The areas where the replication principle could be challenged, such as site-specific adaptation, procurement change, construction methods change and regulatory change will be treated with a very high level of scrutiny by the NCC to protect the benefits of replication as a priority. The engineering team is currently tasked with reviewing proposed deviations to determine if a further CDM review is required, these are triggered by HPC legacy open points or a change in design. The CDMA is invited to the pre-NCC review meeting for input. The PD sits on the NCC but also has the role of the technical programme director on the committee. It was raised by ONR whether there was a conflict of interest with the PD representing both these roles. I understand that NNB GenCo (SZC) Ltd are re-examining this and assessing whether the role should sit elsewhere.
5. During the CHS1 and CHS2 interventions presentations were given regarding the application of the general principles of prevention for the enabling works which covers three permanent works. These are sea defences, beach landing facility and the site of special scientific interest (SSSI) crossing. The following examples were given to show application of the principles:

The proposed shared road and railway access onto site was challenged by the design team, as this would present obvious traffic management difficulties. This hazard has been eliminated by designing a separate access for both road and rail; and

Access into the deep dig area was initially via a single ramp. This has been reviewed by the designers with a view to providing two vehicular access ramps to allow for a one-way traffic system reducing the need for reversing/turning but more so to provide another means of escape in an emergency.

NNB GenCo (SZC) Ltd has met with NNB GenCo (HPC) Ltd regarding lessons learnt and discussed how improvements can be made regarding the sequencing of works. An example was provided that SZC should install the ring main for power and water supply as a priority, as this proved challenging for HPC to manage as delaying its implementation resulted in many different contractor interfaces.

1. HPC company document ‘HP Cranes Low Overhead Clearance ALARP Study’ [38] was discussed. The HP (Cooling Water Pumphouse) building at HPC has been designed with severely restricted clearance between the crane and the building roof. This has been identified as causing issues during access for future maintenance. Design mitigations have been introduced however the document states, “This acceptability rating applies to the HPC project only. For future projects such as Sizewell C, the height of the HP building should be increased relative to the cranes to provide adequate clearance. It should not be considered consistent with as low as reasonably practicable (ALARP) principles to continue with the same design in this aspect as HPC.”
2. The ALARP study is cross referenced to the HPC DRR. Following application of design changes and mitigation actions the residual risk assessment for HPC was assessed and given a rating of “just tolerable.” It was unclear how such residual design risks contained in the ALARP study at HPC were being communicated, captured and addressed within the SZC design team. The SZC design team were looking at possible solutions including modification of the building, crane design or additional justification on maintaining the current configuration. I was informed that this would be subject to the NCC and will be subject to future regulatory scrutiny by ONR.

‘The SZC Project Replication Manual’ [24](paragraph 7.6, CDM Regulations) states that “of relevance to the replication strategy is the need to ensure that Designer’s Risk Assessments completed for the HPC project, along with any risk mitigation actions and residual risks, are accepted for SZC without further challenge whenever the design is fully replicated.” Contrary to this statement (and using the above crane example), in my opinion, NNB GenCo (SZC) Ltd could not demonstrate a systematic approach to identifying conventional health and safety residual risks in HPC’s DRR during replication. Therefore, NNB GenCo (SZC) Ltd was not able to demonstrate how the general principles of prevention, a legal duty on PDs and Designers, as required by CDM2015 Regulations 9 and 11 had been applied. A level 4 regulatory issue (RI 10613) was raised to monitor and record progress against this shortfall. This requires that NNB GenCo (SZC) Ltd produce a procedure as to how a systematic review of HPC’s DRR will be undertaken to identify CHS residual risks. This shortfall would not prevent ONR granting a nuclear licence but will be the subject of regulatory attention going forward.

* + - 1. Ensuring co-ordination and co-operation
1. The NCC ensures that there is a formal procedure for dealing with design risks appropriately. Significant risks that cannot be eliminated are identified in the DRRs and safety health and environment (SHE) boxes are used to communicate relevant information. Exchanges of design information will be carried out as part of project design review meetings and will be formally recorded.

**Provision of pre-construction information**

1. The provision of pre-construction information is described in the ‘CDM Principal Designer Standard’ [19] and the ‘Principal Designer Execution Strategy’ [12]. This is produced by the PD and designers. The structure of pre-construction information is covered in paragraphs 59-62. The information will include surveys and investigations, DRRs and information from earlier design work. SHE boxes are being used on relevant drawings to communicate information on safety, health and environment risks to operatives.

**Conclusion**

1. I consider that there are suitable arrangements in place for the PD to plan, manage and monitor the pre-construction phase. How CHS residual risks are replicated from HPC is the subject of a regulatory issue (RI) but would not prevent ONR granting a nuclear licence, however this will be the subject of regulatory intervention going forward.

**Principal Contractor Arrangements**

1. A PC is the organisation that co-ordinates the work of the construction phase of a project involving more than one contractor, to ensure it is carried out in a way that secures health and safety. As the nuclear site licence has not yet been granted, HSE has the vires presently for the currently limited construction works on site. The PC role is aligned to ‘The Overarching CDM Strategy’ [15]. ‘The SZC Principal Contractor Transition Plan’ [13] describes how the PC role will develop and transition through the project lifecycle. A presentation regarding the PC arrangements also describes the extant and proposed arrangements [39]. It was acknowledged that a key learning point from HPC was that some projects may be too large or complex for a single organisation to fulfil the role of PC on its own.
2. The PC role will be:

Pre-enabling: works the PC will be NNB GenCo (SZC) Ltd SZC;

Construction phase: the PC role will be delivered by the Civil Works Alliance (which includes NNB GenCo (SZC) Ltd). NNB GenCo (SZC) Ltd will set up the management arrangements for the full project life cycle; and

Commissioning: the PC role returns to NNB GenCo (SZC) Ltd for commissioning and handover into operations.

1. For low risk, non-nuclear, geographically separate sites, the main contractor may be appointed as the PC.
2. The Civil Works Alliance (CWA) is yet to be appointed and its structure determined, however the proposed approach has been developed to place key interfaces, management and ownership within the CWA, allowing NNB GenCo (SZC) Ltd to focus on key licensee, CDM2015 client and intelligent customer duties. NNB GenCo (SZC) Ltd will be part of the CWA and have a site operations role across the CWA to ensure consistency and co-ordinate common services e.g. egress, waste removal and temporary services. It is envisaged that common building services e.g. scaffolds and hoists will be provided by one company thus reducing interfaces on design.
3. The ‘CDM Client Standard’ [26] details “that reasonable and proportionate steps to satisfy itself that those it appoints to carry out design and construction work have the skills, knowledge, experience, and, where they are an organisation, the organisational capability to carry out the work in a way that secures health and safety” (section 3.13). I understand that general competency of contractors is covered in NNB GenCo (SZC) Ltd’s ‘Standard Occupational Health and Safety Requirements’. All workers who work or regularly visit the site must hold a current Client Contractor National Safety Group (CCNSG) safety passport as evidence they have a basic understanding of the risks from construction work.
4. The PC role is currently held by NNB GenCo (SZC) Ltd within the pre-enabling works phase. CDM2015 Regulation 12 requires that a Construction Phase Health and Safety Plan (CPP) is produced during the pre-construction phase and before setting up a construction site. A plan has been developed for the onshore investigation and survey phases and the plan will be further developed as the scope of the work on site changes. This plan meets, in my opinion the requirements of Regulation 12 of CDM2015.

**Conclusion**

1. I consider from the evidence sampled that NNB Gen Co as the CDM2015 PC has suitable arrangements in place for managing a project and maintaining and reviewing these arrangements as the project evolves.
2. I consider that the extant CPP meets the requirements of Regulation 12 of CDM2015.

 **Life Fire Safety**

1. The RRO places duties on the employer, as the “responsible person,” to ensure adequate measures are in place to protect persons from fire. These apply during the construction phase of the building in addition to normal completed occupation and any maintenance activity. Fire safety arrangements were assessed at HPC (ONR-NR-AR-18-017 – Conventional Fire Assessment – Consent to commence Unit1 Nuclear Island Concrete) [40]. In line with intelligent replication principles being applied at SZC, assessment of the fire arrangements at SZC has been limited. (see ‘SZC Replication Principles’ [23]). ‘The SZC Replication Manual’ [24] identifies the replication of fire arrangements as low risk and that the risk of design change will be low. However, NNB GenCo (SZC) Ltd stated that this will be kept under review in the forward action plan. This area will be subject to regulatory focus after nuclear licence grant as construction work increases and will be cognisant of any significant design changes which would affect escape routes.

**Conclusion**

1. Based upon adequate implementation of intelligent replication from the HPC site for the application of fire safety arrangements in accordance with RRO, ONR should issue a nuclear site licence**.**

**The New Nuclear Build Site**

1. Regulation 2A of the Health and Safety (Enforcing Authority) Regulations 1998 defines a New Nuclear Build (NNB) site, as a site which:

*(a) is immediately adjacent to a GB nuclear site (“the associated site”)
(b) is, or forms part of, a construction site where construction work is being carried out wholly or mainly for the purpose of the installation of one or more nuclear installations on the associated site; and by or on behalf of the person to whom the nuclear site licence for the associated site has been granted.*

1. Regulation 4A(1)(b) of the Health and Safety (Enforcing Authority) Regulations 1998 [41] establishes ONR as the enforcing authority for premises which are or are on a NNB site. These changes were made by the Energy Act 2013(Office for Nuclear Regulation) (Consequential Amendments, Transitional Provisions and Savings) Order 2014 [42] which came into force on 1 April 2014. The legal definition of a NNB site and ONR’s enforcing role on a NNB site only came into effect in April 2014, so these matters were not considered during ONR’s decision to grant a NSL at HPC. There is also no ONR guidance currently in place relating to a NNB site. Legal advice was sought in relation to a prospective NNB site at Moorside and this advice was used in the production of a position paper (Regulation of the Moorside Project – Note for Discussion with NuGen) [43].
2. A position paper [44] was taken to the EPR Sub-Division Board [45] on 20 December 2021 recommending three options for the regulation of the SZC construction site. This paper considered feedback from meetings with NNB GenCo (SZC) Ltd and other regulators. It was decided ONR would regulate the Main Construction Area (MCA), the Temporary Construction Area (TCA) and the railway line running into the TCA during construction, with areas outside the TCA and MCA to be regulated by HSE.
3. A meeting was held with HSE to discuss vires and the NNB boundary on 23 February 2022. [46] No objections were raised by HSE at this meeting to the proposal.

## Comparison with Standards, Guidance and Relevant Good Practice

1. Guidance accompanying CDM2015, ‘Managing health and safety in construction – CDM2015, Guidance on Regulations’ [6] was referred to in this assessment.

## ONR Assessment Rating

1. Based upon the evidence assessed for NNB GenCo (SZC) Ltd’s arrangements in accordance with CDM2015 and RRO there are no issues to prevent ONR issuing the nuclear site licence to NNB GenCo (SZC) Ltd for the Sizewell C site.
2. The assessment rating is green and is based on planned engagements, interventions and evidence sampled; the adequacy of NNB GenCo (SZC) Ltd’s arrangements and the continued development of those arrangements as the project develops.

# Conclusions and Recommendations

## Conclusions

1. This report presents the findings of the CHS and life fire safety cornerstone. This assessment is part of the overall ONR assessment which supports a decision by the CNI as to whether a NSL should be granted to NNB GenCo (SZC) Ltd.
2. This assessment has been focussed primarily on gaining assurance that NNB GenCo (SZC) Ltd has met its responsibilities as a CDM2015 client. NNB GenCo (SZC) Ltd has also taken the role of principal designer (PD) and principal contractor (PC) at this stage of the project but these roles, notably the PC role (and to a lesser extent the PD role) will be undertaken by others as the project evolves and further regulatory attention will be required once the new dutyholders are (or about to be) appointed. I have concluded that NNB GenCo (SZC) Ltd currently has suitable arrangements in place to comply with CDM2015 as the construction project evolves. However, the suitability of the arrangements will need to be tested post granting of the nuclear licence as the project progresses.
3. In respect of life fire safety based upon adequate implementation of intelligent replication from HPC in accordance with RRO, ONR should issue the nuclear site licence.
4. NNB GenCo (SZC) Ltd could not clearly demonstrate a systematic approach as to how conventional health and safety residual risks in HPC’s DRR had been considered and reviewed to ensure the general principles of prevention as required by CDM2015 Regulations 9 and 11 had been applied. A level 4 regulatory issue RI 10613 has been raised. This issue requires NNB GenCo (SZC) Ltd to take suitable and sufficient account of the design risks identified from HPC when applying design replication by:

(i) Producing a procedure as to how a systematic review of HPC’s Design Risk Register will be undertaken (for licensing purposes);

(ii) Undertaking a systematic review of HPC’s Design Risk Register to identify residual foreseeable conventional health and safety risks;

(iii) Collating significant residual conventional health and safety risks and determine if the principles of prevention have been applied to the residual risks; and

(iv) Where the principles of prevention have not been applied (or there are now different solutions), produce an action plan to manage those identified residual risks.

1. This RI would not prevent the granting of a nuclear site licence.

## Recommendations

1. My recommendations are as follows:
* Recommendation 1: Based on the evidence assessed for NNB GenCo (SZC) Ltd arrangements in accordance with the Construction (Design and Management) Regulations 2015, ONR should issue the nuclear site licence to NNB GenCo (SZC) Ltd for the Sizewell C site.
* Recommendation 2: Based on adequate implementation of intelligent replication from the HPC site for the application of fire safety arrangements in accordance with the Regulatory Reform (Fire Safety) Order 2005, ONR should issue the nuclear site licence to NNB GenCo (SZC) Ltd for the Sizewell C site.

# References

|  |  |
| --- | --- |
| [1]  | “Strategy Paper - New Reactor Construction- Sizewell C- Replication Assessment Strategy (CM9: 2021/52067)”. |
| [2]  | “Licensing Nuclear Installations,” ONR, 2021. |
| [3]  | “SZC New Build Project -ONR Strategy up to Licence Grant (CM9 2021/26955),” January 2022. |
| [4]  | ONR, “Technical Assessment Guides,” [Online]. Available: https://www.onr.org.uk/operational/tech\_asst\_guides/index.htm. |
| [5]  | “Safety Assessment Principals for Nuclear Facilities, 2104 Edition Revision 0, ONR January 2020. hhtp://www.onr.org.uk/sapa/sapa2014.pdf”. |
| [6]  | “Construction (Design and Management) Regulations 2015 "Managing health and safety in construction" https://www.hse.gov.uk/pubns/books/l153.htm”. |
| [7]  | “ONR-NR-CR-21-253 CHS1 and CHS2 Interventions (CM9: 2022/10218)”. |
| [8]  | “ONR-NR-CR-21-585 I-OC5 Training, SQEP and Appointments, I-OC6 Implementation of arrangements (CM9 2022/16234)”. |
| [9]  | “Company Manual (CM9: 2022/1255)”. |
| [10]  | “Sizewell C - Health and Safety Policy (CM9: 2022/9532)”. |
| [11]  | “Sizewell C Construction Phase Health and Safety Plan (CM9: 2022/9532)”. |
| [12]  | “CDM Principal Designer Execution Strategy (CM9: 2022/9532)”. |
| [13]  | “Principal Contractor Transition Plan (CM9 2022/8958)”. |
| [14]  | “SZC Overarching CDM Strategy (CM9: 2022/9532)”. |
| [15]  | “SZC CDM Strategy Version 1 (CM9: 2020/243292)”. |
| [16]  | “SZC CDM Strategy (Version 2) (CM9: 2022/24059)”. |
| [17]  | “Client Arrangements (CM9: 2022/4924)”. |
| [18]  | “Principal Designer Arrangements (CM9: 2022/4925)”. |
| [19]  | “Principal Contractor Arrangements (CM9: 2022/4926)”. |
| [20]  | “LC19 Arrangements (CM9: 2022/4927)”. |
| [21]  | “Agenda and CHS1 and CHS2 intervention requirements (CM9: 2022/4928)”. |
| [22]  | “HP Cranes Low Overhead Clearance ALARP Study (CM9: 2022/9529)”. |
| [23]  | “SZC Replication Principles (CM9: 2020/199512)”. |
| [24]  | “SZC Project Replication Manual (CM9: 2020/199514)”. |
| [25]  | “Project Execution Plan (CM9: 2022/10163)”. |
| [26]  | “The Client Standard (CM9:2022/11009)”. |
| [27]  | “SZC Delivery Model Presentation (CM9: 2022/24079)”. |
| [28]  | “Manage Industrial Safety Evaluation (V 1) (CM9:2022/17677)”. |
| [29]  | “CDM Designer and Principal Designer Standard (CM9:2022/11014)”. |
| [30]  | “Capability Statement - Atkins Ltd (CM9 2022/11250)”. |
| [31]  | “The SZC CDM Contractor and Principal Contractor Standard (CM9:2022/11011)”. |
| [32]  | “SIte Hazard Plan (pre-construction information) (CM9: 2022/11266)”. |
| [33]  | “Pre-construction information template (CM9 2022/11262)”. |
| [34]  | “On-Shore Geotechnical Investigation pre-construction information SZ0 100-108 (CM9:2022/12695)”. |
| [35]  | “Sizewell C Construction Phase Health and Safety Plan (CM9 2022/9532)”. |
| [36]  | “Land Quality Management (LQM) Arrangements (2021/87276)”. |
| [37]  | “SZC Presentation of PD Arrangements (CM9: 2022/4925)”. |
| [38]  | “HP Cranes Low Overhead Clearance ALARP Study (CM9: 2022/9529)”. |
| [39]  | “PC Arrangements Presentation (CM9: 2022/4926)”. |
| [40]  | “ONR-NR-AR-18-017 Conventional Fire Assessment Consent to Commence Unit 1 Nuclear Island Concrete (CM9 2018/22769)”. |
| [41]  | “The Health and Safety (Enforcing Authority) Regulations 1998 ( https://www.legislation.gov.uk/uksi/1998/494/contents/made)”. |
| [42]  | “The Energy Act 2013 (Office for Nuclear Regulation) (Consequential Amendments, Transitional Provisions and Savings) Order 2014 (https://www.legislation.gov.uk/uksi/2014/469/contents)”. |
| [43]  | “Regulation of the Moorside Project - Note for Discussion with NuGen (CM9: 2016/348233)”. |
| [44]  | “Regulation of the Sizewell C Project - Position Paper for Discussion at the EPR Sub Division (CM9:2021/36445)”. |
| [45]  | “Sub Division Board Agenda (CM9:2022/23630)”. |
| [46]  | “ONR / HSE Agenda - meeting on 230222 (CM92022/23629)”. |
| [47]  | ONR, “Safety Assessment Principles (SAPs) (2019/367414)”. |
| [48]  | “ONR-NR-CR-21-253 CHS1 and CHS2 Interventions re Sizewell C CDM arrangements (CM9: 2022/10218)”. |
| [49]  | “Site Activities and Licence Compliance (CM9 2022/18569)”. |

1. CM9 revision to be identified upon completion of activity and incorporation of any changes to document. [↑](#footnote-ref-1)
2. Where required in accordance with [NS-PER-GD-016](https://how2.prod.onr.gov.uk/CtrlWebIsapi.dll/D2B97868F9C04F9F97117C7B56DFC8B7.cwl?__id=webFile.save&doc=3B55AFB1AFAC46B48A5EF6D7C306666C&dpt=1&save=1). [↑](#footnote-ref-2)
3. Hard-copy of document signed-off, CM9 version updated with authors / approver / acceptor names and dates and record finalised [↑](#footnote-ref-3)