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Revision 01

Sizewell C Project
Combustion Activity Permit Application Supporting Information Document

DOCUMENT CONTROL

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REVISION HISTORY

Rev	Status	Amendment	Prepared By	Date
01	Final	First issue of document	[redacted]	11/04/2024

Contents

1 NON-TECHNICAL SUMMARY

This Supporting Information Document (SID) has been prepared to support the Sizewell C Ltd (SZC) permit application for an installation activity environmental permit, EPR Schedule 1, Section 1.1A(1)(a): Burning of any fuel in an appliance with a rated thermal input of 50 MW or more. This document should be read in conjunction with the Environmental Agency (EA) application forms part A, B2, B3 and F1, which are provided in Appendix B of this SID.

An Environmental Permit is required for the Site as per the Environmental Permitting (England and Wales) Regulations 2016 (EPR), as amended.

1.1 Location

The address of the site is:

Sizewell C
Sizewell Power Station
Leiston
IP16 4UR

The site is located on the east coast of England in East Anglia, 2.4 km east of the town of Leiston and directly north of Sizewell B. The site encompasses a total of 362 hectares (ha). The Main Development Site (MDS) includes three zones of temporary and permanent land take as follows:

- **Main Construction Area (MCA)** centred around approximate National Grid Reference (NGR) TM 47284 64085;
- **Temporary Construction Area (TCA)** centred around approximate NGR TM 46235 64729; and
- **Ancillary Construction Area (ACA)** centred around approximate NGR TM 45592 62778.

This permit area also includes two Associated Development (AD) sites, namely AD6 and AD4. Due to their proximity, these additional areas are considered as part of the MDS for the purpose of this application.

The following drawings accompany this Environmental Permit application in Appendix A:

1. Site Location
2. Installation Boundary
3. Emission Points
4. Site plan with nitrate vulnerable zones
5. Proposed Air Quality Monitoring Locations
6. Draft drainage Plan submitted in support of the drainage permit application (CWDA/18)

1.2 Proposed activities

An Environmental Permit is required for the site as per the EPR.

This application is for an installation environmental permit for the following listed activity:

Section 1.1 Combustion Activities Part A(1)(a) Burning of any fuel in an appliance with a rated thermal input of 50 MW or more.

The site is expected to have a total installed capacity of up to 123.2 MWth. The static generators *installed capacity* is expected to be up to 109.9 MWth, and mobile generators are expected to have a total capacity of up to 13.3 MWth. The power demand during the peak construction is expected to be up

to 82.4 MWth, after adjusting the load to account for the utilisation of the hybrid operational mode of the generators.

In total, up to 52 static and 8 working areas which are considered to be area sources for the purposes of the application will be located on site. The static generators on site will consist of up to 45 stage V emission static generators with hybrid batteries linked to the package substations, located within the MDS, and up to 7 static generators associated with ADs, located within or adjacent to the MDS. The site will also house a number of mobile generators for cranes and lighting on the construction site which are designed to be, and will be, moved around within a particular working area or contractor's platform which is expected to have a total capacity of up to 13.3 MWth. The mobile generators are represented as volume sources, split across 8 working areas which comprise: MCA, MCA perimeter, TCA compounds south-east, TCA compounds south-west, TCA compounds north-east, TCA stockpiles, ACA and TCA rail. Please see the Air Emissions Risk Assessment (AERA) (Appendix C) for further information regarding these working areas.

1.3 Emissions and Monitoring

The proposed activity is made up via a series of generator units of varying sizes across the SZC construction site. Emissions from the generators are determined for the site based on a combination of supplier data and calculations.

Ambient air emission monitoring will be undertaken on site and full details are presented in Appendix F.

1.4 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) presents a full risk assessment of the various environmental considerations associated with the proposed combustion activity. Consideration of odour, noise, fugitive emissions and accidents on site is given.

The AERA (Appendix C) concluded the following:

- **Human receptors**: there are no exceedances predicted of the UK air quality objectives for all pollutants and averaging periods considered in this assessment. The predicted increase in ambient air pollutant concentrations at human receptors screens out as insignificant based on the EA criteria for assessing air emissions for an environmental permit application.
- **Local designated sites**: all impacts screened out as insignificant.
- **National and international sites**:
    - There are no exceedances of annual and daily mean NOx and annual mean SO_2 critical levels at all national and international sites. The predicted increase in concentration screens out as insignificant according to the EA screening criteria. Impacts from annual NH_3 emissions screen out as insignificant for receptors E1 (Alde-Ore & Butley Estuaries) and E3 (Orfordness-Shingle Street). Impacts on annual mean NH_3 do not screen as insignificant at receptors E2 (Minsmere-Walberswick Heaths and Marshes), E4 (Sandlings), E5 (Sizewell Marshes) and E6 (Leiston – Aldeburgh).
    - Nitrogen deposition screens out as insignificant at receptors E1, E3, and E6. Acid deposition screens out as insignificant at all sensitive habitats.

Further assessment of the receptors that do not screen out as insignificant are detailed in the HRA and associated CRoW Act Assessment provided in Appendix K.

1.5 Mitigation Strategy

An assessment on the most viable solution to meet the needs of the construction activity has been conducted and the findings have informed the choice of equipment on site, presented in Appendix L.

The main mitigation strategy for the proposed permitted activity will be the implementation of the Construction Electrification Supply (CES), in 2027, which will provide mains power to the majority of the construction site. This will significantly reduce the requirement for the operation of the diesel generators and hence the associated emissions.

A number of other measures have been implemented as part of the project strategy and include hybridisation of the generators to allow for reduced running on diesel, fitting of SCR on the largest generators and increased stack heights for large and medium generators. Furthermore, generators will be strictly controlled via an inventory system to ensure that the correct type of generators are supplied and that they are consistent with the demand as detailed within this environmental permit application.

1.6 Managing Activities

SZC has an Integrated Management System (IMS) which outlines the arrangements that shape and guide the way the business works and provides the framework for maintaining and demonstrating compliance. It consists of Company Manuals, Policies, Standards and Procedures.

SZC's ISO 14001:2015 accredited Environmental Management System (EMS) is an integral part of the company IMS. It provides a structured system of environmental arrangements and associated tools to identify, manage and mitigate SZC's environmental aspects and impacts and achieve and maintain legal compliance.

Contractors will work in conjunction with the SZC EMS but will be supplemented by their own written arrangements. Their Construction Environmental Management Plan (CEMP) will meet the requirements of the Code of Construction Practice (CoCP) and will set out how they will manage and mitigate their environmental impact on site and how they will comply with SZC contractual requirements and legal requirements.

1.7 Raw Materials, Water and Waste

The combustion activity will use raw materials comprising diesel, ad-blue, coolant, hydrotreated vegetable oil, antifreeze and lubricating oils. The proposed activity will not require any water usage.

The suppliers of generators will carry out scheduled servicing and maintenance on all generators on site. During the planned servicing/maintenance and in the event of repairs, some quantities of oils will be removed from generators as waste and disposed of in line with all waste regulations. The quantities of oils taken out as waste will be kept to a minimum and controlled to prevent spills.

SZC adopt the waste hierarchy on site for the segregation and management of wastes and the company has targets for the reduction of waste being sent to landfill for disposal written into the SZC Development Consent Order (DCO).

Facilities are available throughout the construction site for the segregation and disposal of waste and an external contractor will provide appropriate disposal routes for these waste streams.

1.8 Best Available Techniques Assessment

A Best Available Techniques (BAT) assessment has been undertaken to describe the rationale behind the proposed technology choices for the generators. It can be found in Appendix H.

2 INTRODUCTION

2.1 Purpose

This SID has been prepared to support the SZC permit application for an installation environmental permit for the following proposed activity: EPR Schedule 1, Section 1.1A(1)(a): Burning of any fuel in an appliance with a rated thermal input of 50 Megawatts (MW) or more. This document should be read in conjunction with the Environment Agency application forms part A, B2, B3 and F1, which are provided in Appendix B.

An Environmental Permit is required for the Site as set out in the Environmental Permitting (England and Wales) Regulations 2016, as amended (EPR). This application is for an installation activity environmental permit, EPR Schedule 1, Section 1.1A(1)(a): Burning of any fuel in an appliance with a rated thermal input of 50 MW or more.

At its peak, the construction site is expected to have up to 52 static generating units on site ranging in size from 12 Kilowatt Thermal (kWth) to 2400 kWth. There will be mobile generators at varying sizes. A full inventory of generating equipment, at any one time, is retained on site within the 'Integrated Emissions Management Protocol' (IEMP) (Appendix F). The IEMP details the arrangements and controls in place at SZC for the management of the construction combustion activity and describes the data that is available and will be collated and reported by SZC. The IEMP retains this inventory due to the dynamic nature of the construction site.

The generator inventory will be a live document and may change depending on the requirements of the construction activity. However, the air quality model is based on moderately conservative estimates of the installed capacity and allows some headroom for the site's evolving requirements. The estimated installed capacity of 123.2 MWth is not expected to be exceeded. A generator permitting system will be implemented as part of the site management systems to ensure efficient use of generation and monitor compliance with the permitted installed capacity. The generator inventory can be found in Appendix C.

Drainage activities associated with the SZC construction site are proposed to be regulated under a separate water discharge permit and a draft plan of the drainage plan is provided in Appendix A.

2.2 Background

Once built, SZC will be a new 3.2 Gigawatt (GW) nuclear power station on the Suffolk coast and will generate low carbon power for 6 million homes for at least 60 years. The project will save 9 million tonnes of CO_2 emissions for every year of its operation. Nuclear has zero carbon emissions at the point of generation and has very low overall life cycle emissions. An independent report showed SZC will offset its construction emissions within a few months of operation.

SZC has received an 'excellent' rating from infrastructure sustainability assessor CEEQUAL, demonstrating our commitment to sustainability.

SZC will pave the way for new low carbon technologies like Hydrogen and Direct Air Capture as part of an energy hub that will provide even more value to consumers. SZC is looking to use hydrogen sourced locally to power vehicles and machinery to lower emissions during construction and to act as a catalyst for the development of a regional hydrogen ecosystem.

2.3 Summary description of the proposed combustion activity

SZC's total combustion activity capacity using generators during the construction phase is anticipated to reach an aggregated thermal capacity input of 50 MWth. Due to the potential for the threshold to be reached, it has

been agreed with the EA to apply for the >50 MWth permit straight away rather than apply for a Medium Combustion Plant permit. This approach will allow flexibility in the operating profile of the generators throughout the construction phase.

For a short period of 3 to 4 years during the early construction years of the power station there will be a need to use diesel generators. There will be an increase in generator use in 2024 and 2025. Currently it is estimated that the peak demand is for a 12 to 18 month period, starting in 2025. During this time, the project is looking to utilise a number of 1250 KvA (2400 kWth) generators located around the construction site which are strategically positioned where the eventual connected electricity supply will become available. Presently it is not possible to profile the demand from these generators, but the peak demand is estimated on a moderately conservative basis to be around 82.4 MWth. Ahead of the expected peak period in 2025/2026, the capacity of the generators would likely be below the 50 MWth threshold.

A CES will be provided as soon as practicable, scheduled to be commissioned in 2027. Stage V emission generators with hybrid batteries are a key requirement of the project and wherever possible, will be used to bridge the gap through the early years of the construction prior to installation of the CES. During this time, the generators are there to provide power to support construction activities and to create a safe working environment for people working on the site, including welfare buildings, heating and lighting.

There is the potential that the CES may be available prior to the site demand exceeding 50 MWth. After installation of the CES, it is expected that where practicable the power demand will use this CES, however there may be a small number of generators still needed. In addition to the CES, SZC is seeking to utilise power through an early electrical connection from Sizewell B (SZB) which will significantly reduce the power demand from generators in the first 2-3 years. This supply may not always be 100% available and there may be times where SZB require the power to support its operation or in shutdown/maintenance scenarios.

The proposed activity scenario which the air quality modelling has been based upon to support this permit application is considered to be moderately conservative, based on estimates of the installed capacity and it allows some headroom for the site's evolving requirements. The conservatism is based upon:

- Being based on the best available information for the early works power needs (2024) and the current estimates based on the peak generator power year in 2025/2026 ahead of the CES becoming available;
- Potential for early CES availability;
- Potential SZB connection;
- Overall duration over which the generators will be operational, between the start of construction and CES connection. This will be short in comparison to the overall construction period of the build.

2.4 Location

The site is located on the east coast of England in East Anglia, 2.4 km east to the town of Leiston and directly north of SZB. The site location is shown in Figure 1 in Appendix A.

The site of the proposed development is centred at UK National Grid Reference (NGR) TM 47355 64128. It is located on the Suffolk coast, approximately mid-way between Felixstowe and Lowestoft, to the north-east of the town of Leiston. The site address being used for the construction works is Sizewell B power station, near Leiston, Suffolk, IP16 4UR (as the nearest operational facility). The development comprises a Nuclear New Build (NNB) Power Station. This will include a power station building, reactor buildings, turbine halls, cooling water infrastructure, interim waste / fuel storage, operational service centre and offices, electricity transmission equipment, the temporary works area and associated infrastructure to facilitate construction or operation.

This permit application relates to the following areas of the site:

- MCA;
- TCA;
- ACA;
- Associated Development 4 (AD4); and
- Associated Development 6 (AD6).

A full description of the development, including details on how it will operate once built, is available publicly online. In summary, and for the purposes of informing the reader of this document, the development comprises two main elements from a construction perspective:

MDS: to include aspects such as the reactor buildings, turbine halls, cooling and drainage water infrastructure, interim waste / fuel storage, operational service centre and offices and electricity transmission equipment. The MDS comprises the MCA, TCA and ACA.

AD sites: including Darsham Park and Ride, Wickham Market Park and Ride, a Freight Management Facility and improvements to rail / highways infrastructure including the Sizewell Link Road, Two Village Bypass, Yoxford Roundabout, AD6 Road Scheme and Leiston Branch Line upgrades.

The areas to which this permit application relates to include the MCA, the TCA, the ACA, AD4 and AD6 which are defined as follows:

MCA: The MCA comprises the main Power Station platform which will house the permanent operational plant and buildings. Works will also be undertaken along the foreshore to the east of the main Power Station development platform comprising of sea defences, a marine bulk import facility, combined drainage outfall and other elements. Additionally, a new substation will be constructed in the western section of the TCA approximately located at TM 45280 64153. The MCA is located in the east of the construction permit site. The southern boundary of the zone is south-west of the Sizewell B Power Station bounded by Sizewell Gap. The Sizewell Marshes Site of Special Scientific Interest (SSSI) bound the west and north of the zone and the North Sea is present to the east.

TCA: The TCA comprises the area of land located primarily to the north and west of the MCA and to the north of Sizewell Marshes Site of SSSI. This land is required on a temporary basis to facilitate the construction of the Power Station and will include contractor compound areas, borrow pits, spoil management zones, an accommodation campus, extensions to rail infrastructure, a site entrance hub and areas for material storage.

ACA: The ACA is isolated from the rest of the MDS and is located immediately north-east of the town of Leiston. The ACA is bounded by Valley Road to the north, Lovers Lane to the east, Eastlands Industrial Estate to the west and King George's Avenue to the south. Note that the DCO and associated planning documents refer to the ACA as Land East of Eastlands Industrial Estate.

AD6: AD6 forms part of the development but is considered separate from the MDS. This part of the project is located to the west of the MCA and Sizewell Marshes SSSI. It comprises a new highway scheme and roundabout which will form an integral route for both construction and operational phase traffic.

AD4: AD4 is connected to AD6 and the MDS, intersecting across Abbey Road. The area in its entirety, comprises a temporary rail extension of approximately 4.5km from the existing Saxmundham to Leiston branch line to a terminal within the main development site.

The MCA, TCA and ACA are classified as falling within the MDS, while AD4 and AD6 are areas located to the west of the MDS comprising a rail scheme and highway scheme, respectively, required to support the development. Due to their proximity and for the purposes of this application, AD4 and AD6 have been considered as part of the MDS, specifically the TCA and are henceforth referred to in this way. The site boundary and the site zones can be seen in Appendix A.

The approximate co-ordinates for the centre of each zone located within the site are as follows:

- The MCA is centred around at approximate NGR TM 47284 64085;
- The TCA is centred around at approximate NGR TM 46235 64729; and
- The ACA is centred around at approximate NGR TM 45592 62778

The site is located within 1 km of several sensitive land uses [1] as follows:

- Nitrate Vulnerable Zone – the entire site is located within a Nitrate Vulnerable Zone (see Appendix A [2]).
- Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) – the AONB is present within the MCA and eastern edge of the TCA and located adjacent to the ACA.
- Sizewell Marshes SSSI – the SSSI is present to the western edge of the MCA (see Appendix A).
- Minsmere-Walberswick Heaths and Marshes SSSI, Special Area of Conservation (SAC), Ramsar and Special Protection Area (SPA) – is located adjacent to the north of the TCA (Appendix A)

The site boundary, zones, sensitive receptors, monitoring points and draft site drainage plan can be seen within Appendix A.

2.5 References and definitions

Table 1 - Definitions

Term / Abbreviation	Definition
ACA	Ancillary Construction Area
ADs	Associated Developments
AD6	Associated Development 6
AERA	Air Emission Risk Assessment
AONB	Area of Outstanding Natural Beauty
AQS	Air Quality Standards
BAT	Best Available Techniques
CCM	Construction Combustion Monitoring
CEMP	Construction Environmental Management Plan
CES	Construction Electrification Supply
CO_2	Carbon dioxide
CoCP	Code of Construction Practice
COSHH	Control of Substances Hazardous to Health
DCO	Development Consent Order
EA	Environment Agency
EDRMS	Electronic Document and Records Management System
EMS	Environmental Management System
EPR	The Environmental Permitting (England and Wales) Regulations 2016
ERA	Environmental Risk Assessment
ESC	East Suffolk Council
GW	Gigawatt
Ha	Hectares
HRA	Habitats Regulations Assessment
HVO	Hydrotreated Vegetable Oil
IED	Industrial Emissions Directive
IEMP	Integrated Emissions Management Protocol
IMS	Integrated Management System
kVA	Kilovolt-Amps
KWth	Kilowatt Thermal
MCA	Main Construction Area
MCP	Medium Combustion Plant
MDS	Main Development Site
MVA	Mega Volt-Amp
MW	Megawatt

Term / Abbreviation	Definition
MWth	Megawatt thermal
NGR	National grid reference
NH_3	Ammonia
NIA	Noise Impact Assessment
NMMP	Noise Monitoring and Management Plan
NNB	Nuclear New Build
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NRMM	Non Road Mobile Machinery
PM	Particulate Matter
PPM	Parts Per Million
RAMS	Risk Assessment and Method Statement
SAC	Special Area of Conservation
SHESSC	Safety, Health, Environment, Social and Sustainability Committee
SO_2	Sulphur Dioxide
SPA	Special Protected Area
SID	Supporting Information Document
SSSI	Site of Special Scientific Interest
STU	Stationary Technical Unit
SZB	Sizewell B
SZC	Sizewell C
TCA	Temporary Construction Area
VOCs	Volatile Organic Compounds

Table 2 – References

Ref	References
1	Landmark Information Group, "Envirocheck Reports: 40136387_1_1, 40137381_1_1, 40138928_1_1, 40144528_1_1, 40144706_1_1, 40144960_1_1, 40146010_1_1," July 2012.
2	Environment Agency. Check for Drinking Water Safeguard Zones and NVZs. October 2023. [Online]. Available: https://environment.data.gov.uk/farmers/ [Accessed 14 February 2024]
3	Sizewell C. Specification Hybrid Generator and Battery system. N.d.
4	EA and DEFRA, "Oil storage regulations for businesses," 2015. [Online]. https://www.gov.uk/guidance/storing-oil-at-a-home-or-business
5	British Standards Institution (2019). BS 4142:2014 + A1:2019 Methods for rating and assessing industrial and commercial noise. BSI, London.
6	British Standards Institution (2014). BS 5228-1:2009 + A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise. BSI, London.
7	HMSO (1974). Control of Pollution Act 1974.

Ref	References
8	NNB Generation Company (SZC) Limited (2020). Volume 2 Main Development Site Chapter 14 Terrestrial Ecology and Ornithology. [online] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001844-SZC_Bk6_ES_V2_Ch14_Terrestrial%20Ecology%20and%20Ornithology.pdf
9	Department for Business, Energy & Industrial Strategy (2022). Habitats Regulations Assessment for an Application Under the Planning Act 2008 Sizewell C New Nuclear Power Station. [online] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-011167-SZC-HRA.pdf
10	NNB Generation Company (SZC) Limited (2021). Code of Construction Practice (REP10-072). [online] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008183-Carly%20Vince%20-%20Other-%20Code%20of%20Construction%20Practice%20(clean%20version).pdf
11	NNB Generation Company (SZC) Limited (2021). Main Development Site Construction Parameter Plans (REP7-269). [online] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-007144-Sizewell%20C%20Project%20-%20Other-%20SZC%20Bk2%202.5(E)%20Ch%20Main%20Development%20Site%20Construction%20Parameter%20Plans%20For%20Approval.pdf
12	NNB Generation Company (SZC) Limited (2021). Terrestrial Ecology Monitoring and Mitigation Plan (REP10-090). [online] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008098-Carly%20Vince%20-%20Other-%20Control%20Document%20-%20Terrestrial%20Ecology%20Monitoring%20and%20Mitigation%20Plan%20(clean%20version).pdf

2.6 Key Legislation, Policy and Guidance

This section identifies and describes the European and National legislation and key guidance relevant to the assessment of impacts from combustion activities.

Table 3 – Key Legislation

Legislation	Summary
European Legislation	
2010/75/EC Industrial Emissions Directive	Legislation governing pollutant emissions from industrial installations.
National Legislation	
Environmental Permitting Regulations (England and Wales) 2016 (as amended)	Legislation governing the environmental permitting regime in England and Wales
Key Guidance	
BAT Reference Document for Large Combustion Plants: EUR 28836 EN	This document describes, in detail applied techniques, present emissions, consumption levels, best available techniques and BAT conclusions relating to Large Combustion Plants.

2.7 Contents of the Application and Supporting Information

Table 4 below outlines the structure of this application supporting document.

Table 4 – Application Technical Report Structure

Section reference	Title	Brief Description	Application Form Reference
1	Non-Technical Summary		Form Part B2, Question 5c
2	Introduction	Demonstration of the need for an Environmental Permit and how the Environmental Permitting Regulations apply	
3	Proposed Combustion Activity	Provides a more detailed description of the activity and details of the site set up and directly associated activities	Form Part B3, Question 3c Form Part B3, Question 6b, 6e and 6d
4	Emissions	Characterises the proposed emissions	
5	Environmental Risk Assessment	Identifies and assesses potential risks	
6	Mitigation Strategy	Describes the proposals to mitigate the potential impacts of the activity	
7	Managing activities	Outlines how the activity will be managed and addresses the requirement for management system	Form Part B2, Question 3d
Appendix A	Site plans and drawings	Drawings and Diagrams of the site	Form Part B2, Question 5
Appendix B	Environment Agency Applications forms	Application forms	
Appendix C	Air Emissions Risk Assessment	Detailed report describing air quality modelling and emissions results	Form Part B3, Question 7a and Appendix 1, question 13
Appendix D	Application Site Condition Report	Report describing the condition of the land before operations commence	Form Part B2, Question 5b
Appendix E	Noise Impact Assessment	Report describing the limits and controls in place at for the management of noise and vibration on site.	
Appendix F	Integrated Emissions Management Protocol	A document describing the arrangements and controls in place at SZC for the management of the construction combustion activity and describes the data that is available and will be collated and reported.	Form Part B3, Question 3b and 4
Appendix G	Environmental Management System ISO 14001 Accreditation	SZC 14001 certificate of accreditation for their Environmental Management System.	
Appendix H	BAT Assessment	Report describing how the site meets best available techniques.	Form Part B3, Question 6a
Appendix I	Accident Prevention and Management Plan	A document that describes how the site will minimise and manage risks. This document includes an Environmental Risk Assessment	Form Part B2, Question 6
Appendix J	Contingency Plan	This plan describes how the site will deal with any incident that could result in pollution and non-compliance.	
Appendix K	Shadow Habitats Regulations Assessment	This document assesses the risk that the proposed activity poses to ecologically designated sites.	
Appendix L	Mitigation Strategy	This document demonstrates potential measures which could be undertaken with	

Section reference	Title	Brief Description	Application Form Reference
		regards to off-setting the potential impacts from emissions to air associated with the use of generators as part of the combustion activity permit	

3 PROPOSED COMBUSTION ACTIVITY

3.1 Power requirement

Generators will be required through construction to power a number of activities. The specific requirement for generators depends closely upon the construction programme, sequence and methodology; all of which are necessarily under development (and will continue to be). SZC has determined the following requirements based upon direct experience gained from Hinkley Point C, and other major infrastructure projects.

3.1.1 Strategy

The use of generators will be minimised through:

- **Package substation approach** – The package substations will be connected to multiple buildings and site locations, eliminating the need for each building or site set-up to have its own generator, and streamlining generator usage;
- **Use of CES** – due to other commitments this can only be available in 2027; and
- **Potential Sizewell B supply connection** – feasibility currently being determined for an intermittent supply connection in Q3 2024.

This strategy significantly reduces the number of required generators (particularly in the MCA). Note, as the SZB connection is not yet confirmed, this has not been included within the determined power requirement.

3.1.2 Generators

In total, up to 52 static generators and 8 working areas, which are considered to be area sources for the purposes of the application, are expected to be located on site. The static generators on site are expected to consist of up to 45 stage V emission generators with hybrid batteries linked to the package substations, located within the MDS and up to 7 generators associated with ADs, located within or adjacent to the MDS. The use of these generators will ensure that generator running time is reduced, especially during low-power periods, and the use of peak lopping will allow a reduction in the sizes of generators deployed across the project. The benefit of hybrid generators is that at low loads or whilst idling, the diesel generator is switched off, and the load is provided by an internal/external storage battery instead. As such, these units provide a significant reduction in diesel run time by utilising battery storage when available, switching to diesel operation when required which also concurrently recharges the battery.

The hybrid generators on site will run the main offices and welfare units. The hybrid operational mode is not suitable for all uses. This is because they have a limit on the maximum current (amps) they can receive, which will be exceeded by the generator's peak loads during start up. Live trials are ongoing with suppliers, to optimise the hybrid configurations to meet site operational requirements. The output of the trials will inform specifications for hybrid generator deployment for upcoming works. Please see the BAT Assessment in Appendix H and Mitigation Strategy in Appendix L for more information regarding the hybrid generators.

The site will also house a number of mobile generators for cranes and lighting on the construction site which are designed to be, and will be, moved around within a particular working area or contractor's platform. The mobile generators are represented as volume sources within the Air Quality Modelling (Appendix C), split across 8 working areas which comprise: MCA, MCA perimeter, TCA compounds south-east, TCA compounds south-west, TCA compounds north-east, TCA stockpiles, ACA and TCA rail. The mobile generators are unlikely to move across the 8 construction working areas detailed within Appendix C.

The makeup of the generator inventory may change from what is stated in Appendix C depending on the requirements of the construction activity however, the air quality model is based on moderately conservative

estimates of the installed capacity and allows some headroom to allow for the site's evolving requirements. A live generator inventory will be kept within the IEMP (Appendix F)

3.1.3 Sequence

A high-level overview of the sequence includes:

- 2024 use of generators
- Q4 2024 potential SZB supply to MCA
- 2025/2026 peak power requirement
- 2027 CES available on MDS

During the early site establishment phase of the project, each building or site set up will be powered by its own set of static diesel hybrid generators. Up to 52 static diesel generating units will be present on site at SZC along with mobile generators for cranes and lighting within 8 working areas.

The site will need increasingly more electricity generation up to the anticipated peak generator use in 2025/2026 therefore, generators will be gradually added to the site as required.

The CES is due to be fully operational in 2027 based on the current construction project schedule. Upon commissioning of the CES, power will be distributed to the package substations installed earlier as part of the generator strategy. This will introduce a significant amount of electrical capacity to the construction site that will reduce the site's reliance on generators. As the construction works develop, the package substation may be moved to suit the project needs; however, the power supply principles will remain the same. After site electrification, some generators will still be necessary for critical buildings and construction activities, particularly those requiring uninterrupted power.

Forecasts of the predicted power demand for the construction project and the implementation of the CES predicted that the peak use of generating equipment on site is due to be in 2025/2026 and electricity generation from generating equipment is predicted to decline from 2027 onwards.

Scenario for modelling

The proposed activity scenario which the air quality modelling has been based upon to support this permit application is considered to be a moderately conservative estimate of the installed capacity and allows some headroom for the site's evolving requirements. The conservatism is based upon:

- The best available information for the early works power needs (2024) and the current best estimates based on the peak generator power year in 2025/2026 ahead of the CES becoming available.
- Potential for early CES availability
- Potential SZB connection
- The duration over which the generators will be operational, between the start of construction and CES connection. This will be short in comparison to the overall construction period of the build.
- A generator permitting system will be implemented as part of the site management systems to ensure efficient use of generation and monitor compliance with the permitted installed capacity (see below).

The generator inventory can be found in the AERA (Appendix C).

The site is expected to have a total installed capacity of up to 123.2 MWth. The static generators installed capacity will be up to 109.9 MWth, and mobile generators will have a total capacity of up to 13.3 MWth. The

power demand during the peak construction is expected to be up to 82.4 MWth, after adjusting the load to account for the utilisation of the hybrid operational mode of the generators.

3.2 Power controls

There are controls in place for the management of generating equipment on site at SZC. Equipment can only be brought to site if it is provided by a reputable supplier with associated maintenance paperwork. SZC Ltd has its own provider of generating equipment on site and only a small number of other providers are used at present by Tier 1 contractors.

The IEMP (Appendix F) details the arrangements and controls that will be in place at SZC for the management of the construction combustion activity and describes the data that is available and will be collated and reported by SZC Ltd. The IEMP retains this inventory due to the dynamic nature of the construction site.

A generator inventory is presented in the AERA in Appendix C. The inventory contains the following information:

- X, Y coordinates;
- Area location;
- Generator type/make;
- Rated/installed power;
- Usage/load; and
- Load adjusted power.

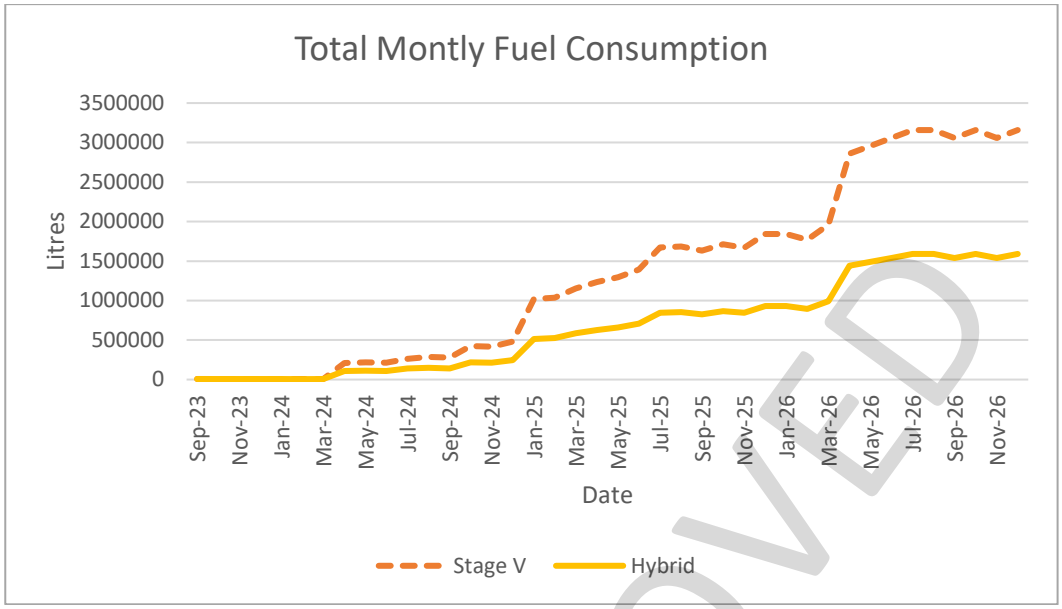
To understand the utilisation / loading of generators across site telemetry data will be utilised where available. Details on the telemetry controls proposed is detailed in Section 3 of the IEMP (Appendix F).

3.3 Raw Materials

3.3.1 Fuel Consumption

At its peak the construction combustion activity requires up to 125,056 litres of fuel (diesel) each day to operate the various generators on site at SZC. **Error! Reference source not found.**1 presents the predicted fuel usage for the site should it use hybrid operating mode (Hybrid: yellow) or not (Stage V: orange). Note these are monthly figures to highlight the gradual operational ramp up.

Figure 1- Predicted Fuel Usage



As discussed in the Power Requirement and Generator type section, all generators will be stage V hybrid, but the degree to which they can be operated as hybrid is being explored through field trials. Therefore, the actual requirement is likely to be somewhere between these.

As of January 2024, the average fuel consumption for the main generator sets on site is approximately 2,100 litres weekly. The actual fuel consumption of each generator varies based on factors including power output, load demand, hybrid operation and electrical conversion efficiency. During peak demand, fuel usage is predicted to reach 125,056 litres a day. A maximum of 125,056 litres of diesel will is expected to be stored at the site.

3.3.2 Other raw materials

The additional raw materials required for the operation of the combustion activity are listed in **Table 5** – Raw Materials.

Table 5 – Raw Materials

Raw material	Maximum Quantity stored on site (litres)
Ad-blue	12,506
Coolant	1,473
Hydrotreated Vegetable Oil (HVO)	The use of HVO is currently being trialled. This information will be provided at a later date should SZC decide to use HVO as an alternative fuel.
Antifreeze	The site uses coolants which are resistant to freezing weather conditions and resist boiling conditions when operated at peak loads for long periods. Therefore, the quantities of anti-freeze used and stored are minimal.
Lubricating Oils	921

Currently, some of the site static diesel hybrid generators used for the early works welfare facilities are powered by HVO. The project is engaging with the HVO supply chain to ensure that the fuel requirements of the project can be met if a transition to HVO is made. HVO provides a number of benefits including a reduction in both Particulate Matter (PM) and Nitrogen oxides (NOx) emissions to a varying degree depending on appliance and engine type.

The Application Site Condition Report (Appendix D) includes a relevant hazardous substances assessment. The assessment quantifies the risk that the above substances pose to soil and groundwater. Please refer to the assessment for further information.

The proposed activity will not require any water usage.

3.4 Directly Associated Activities

3.4.1 Fuel handling and storage

Transportation, handling and storage of fuels, oils and chemicals for the site works will follow current best practices, including the oil storage regulations for businesses (May 2015) [4].

Fuels are delivered to the permitted activities (generating equipment) using fuel bowsers, and oils/antifreeze are transported in manufacturers' packaging to prevent spills and leaks. Fully bunded small-sized fuel tanks ranging between 1,000 – 3,000 litres are sited near the main site generators to ensure supplies are readily available when required. The fuel tanks have been suitably sited to minimise movement as the project progresses and have been set up with minimal risk of collision from vehicles or plant. Each of the generators will have their own day tank which will be self-bunded and can store between 1,000 to 2,000 litres dependent on the model of generator.

Fuels, oils and chemicals will be stored on hardstanding or similar surfaces with controlled drainage to prevent releases to the ground and to controlled waters. The quantities of fuels, oils and chemicals will be managed to ensure that the minimum volumes required for safe site operations are maintained.

All generators on site are to be internally bunded and operated and maintained in accordance with their manufacturer's requirements and standard operating procedures will be followed. All paperwork for equipment not contracted by SZC directly is contractually available for SZC to inspect as and when required.

Re-fuelling of generating equipment is undertaken under the control of appropriate Risk Assessments and Method Statements (RAMS). RAMS must be reviewed and approved by SZC prior to an activity/task taking place on site. Activity/task specific RAMS may include refuelling within the activity/task but the refuelling element will always be covered by a RAMS. Refuelling will take place on hardstanding, meaning that leaching to soil / groundwater is unlikely to occur.

There is an intention for a fuel farm to be established in 2027. The design and operational procedures are currently being developed. SZC can provide more information regarding the fuel farm during the permit determination stage.

Emergency Arrangements

In the event of a major spill on site, SZC will respond to help prevent immediate environmental impact. A dedicated spill control contractor will be mobilised to site to remediate and clean up any major spills. Contractual arrangements for a response within 24 hours will be maintained. For minor spills on site these will be cleaned in-house to ensure working arrangements and a safe working environment is maintained. In accordance with BS EN 61511 the worst case spill scenario is defined as an uncontrolled loss of 7,000 litres of product (single compartment of an articulated delivery tanker) during a 1:30 year storm event (site drainage parameter). Should this occur and based on the current storage capacity within the system there will be approximately 70 minutes to respond to a catastrophic event. In this scenario, SZC would mobilise internal response teams (Site Operations have a tractor and 10,000 litre tractor tower vacuum tanker based on site full time) to support the event.

Spill equipment is available at strategic locations and staff are trained in the use of these spill kits, and the Emergency Spillage Procedure will be followed in the event of a spill. SZC maintain an organisational learning

tool (Insight) that is used to record observations/non-conformances/good practice etc. Pollution incidents are recorded in this tool and these records can be made available upon request.

Security Controls

Combustion activities are within the wider SZC construction site and will benefit from the stringent security measures in place for the wider SZC site, including:

- 24/7 manned, gated security access;
- Electronically controlled vehicle delivery management system;
- Allotted vehicle entry / egress slots; and
- Fully vetted worker access controls.

3.5 Permit Capacity

The SZC construction combustion activity will be permitted as an installation for the burning of fuel in an application with a rated thermal input in excess of 50 MW. The permitted capacity for the activity is proposed to be defined on the basis of emission loadings over a defined period of time e.g. a month. This is on the basis that the use of mobile generating equipment at SZC is dynamic due to the operations being undertaken at any given time. It is therefore proposed that permit limit values be prescribed for each of the operational areas described above (MCA, TCA and ACA) as load-based limits of an agreed time period.

As such, the Air Emission Risk Assessment presented in Appendix C of this application is based on the above approach and defines not only the overall air quality impacts from the construction combustion activity but also from the individual operational areas. Details of the compliance methodology will be presented in the IEMP and agreed with the EA during the environmental permit determination period.

3.6 Site Drainage

Site drainage associated with the combustion activity will be limited to surface water run-off from the wider construction site. SZC will be applying for water discharge activity permits associated with the construction phase which include, but are not restricted to, surface water runoff and groundwater discharges. The first of these applications has been submitted to the EA and covers the early construction phase. A draft drainage plan from this application is available in Appendix A.

3.7 BAT Summary

The site consists of a single installation comprising a Stationary Technical Unit (STU) made up of the generator engines, package substations and fuel oil storage tanks for power generation. The individual engine thermal inputs are each less than 15 MWth therefore, the plant does not form a Chapter III Combustion Plant under the Industrial Emissions Directive. The total thermal input installed and applied for is 123.2 MWth.

The relevant areas of BAT with regards to the SZC construction combustion activity are considered below.

Avoidance, recovery, and disposal of waste

Suppliers of generators will carry out scheduled servicing and maintenance on all generators on site. During the planned servicing/maintenance and in the event of repairs, some quantities of oils are removed from generators as waste. The quantities of oils taken out as waste are kept to a minimum and controlled to prevent spills.

SZC adopts the waste hierarchy on site for the segregation and management of wastes and the company has targets for the reduction of waste being sent to landfill for disposal written into the site DCO.

Waste associated with the SZC construction combustion activity would generally consist of waste lubricating oil, oily rags, small re-fuelling vessels, where used, and potentially small quantities of other Control of Substances Hazardous to Health (COSHH) waste associated with maintenance activities for generators. Facilities are available throughout the construction site for the segregation and disposal of waste and an external contractor will provide appropriate disposal routes for these waste streams.

Storage of fuels

The generator sets have a self-bunded day tank which can store between 1,000-2,000 litres dependent on the generator model. The generators will have telemetry to monitor their performance, where available.

The fuel system for each of the package substations and associated hybrid diesel generator shall include an electronic engine governor, fuel metering equipment, filter and fuel cutoff valves, and a diesel fuel oil tank [3].

The fuel oil tank will be of all welded steel construction complete with supports, access manhole, moisture drain valve, inlet and outlet connections, valved drain connection, level gauge, level alarm contacts (high and low), air breather, shielded level gauge and strainer. The tank shall be coated with oil resistant paint. The fuel tank will be hydrostatically tested.

The fuel tank will be made of a 3 mm thick sheet of mild steel. The tank will have fuel level indicator with brass cover for mechanical protection, filling inlet with removable fuel screen, outlet located at minimum of 25 mm above from the bottom of the drain plug, air vent and necessary piping. The inlet of the pump will be provided with flexible/rigid pipe with suitable filters. The fuel tank will have a control box for the valves related to the pump system.

Local, small scale storage of fuel on site is discouraged due to risks associated with fire and mismanagement, however COSHH stores are available through the construction site with appropriate bunding and access control. Small bowsers for refuelling operations are occasionally used. They will be stored with spill kits immediately available and will be locked unless in use.

Energy Efficiency

Whilst the construction activity may require greater than 50 MWth within the installation boundary to provide the total electricity needs for the construction phase until site electrification in 2027, there are a number of factors which narrow options with regards how to supply this electricity. These factors include lack of gas supply, temporal nature of project, the need for generator mobility and infrastructural needs. The factors associated with the construction needs of SZC mean that some alternative technologies and fuels are not viable options. These options and the rationale behind the generator selection is justified in the BAT assessment (Appendix H).

4 EMISSIONS

4.1 Emissions

The following emissions from the SZC construction site have been considered for the construction combustion activity permit air quality assessment detailed in subsequent chapters of this application.

4.1.1 Generators

Static and mobile generator units as described in the Power Requirement section and the Inventory of Appendix C.

4.1.2 Non-Road Mobile Machinery

Non Road Mobile Machinery (NRMM) emission sources have also been considered within the dispersion modelling assessment. Although not a requirement of the permit, the inclusion of the NRMM process contribution to the background concentrations will provide a more representative baseline for air quality concentrations on the site. NRMM sources have been modelled in the same way as the mobile generators, i.e. as aggregated area sources but will not be regulated by the Environmental Permit.

Further details on the assessment of NRMM and the full inventory can be found in the AERA in Appendix C to this report.

4.1.3 Emissions during Construction

The progression of construction will result in an increase in emissions from diesel generators up to a peak. This will then reduce through the phased electrification of the site and the associated switch over of systems to permanent electricity supplies.

The peak in generator emissions on site is predicted to occur in 2025/2026. After this the site will benefit from installation and availability of the full CES from 2027 resulting in the reduction in generator use and emissions from this point.

4.1.4 Emissions abatement

The emissions of particulate matter (PM) and sulphur will be negligible, based on manufacturers' data and the use of low-sulphur diesel (10 parts per million (ppm) sulphur).

All Stage V hybrid diesel generators that are rated 100 kilovolt-amps (kVA) or above will be fitted with selective catalytic reduction to reduce NO_x emissions. The 30 kVA and 60 kVA generators have diesel particulate filters only.

5 ENVIRONMENTAL RISK ASSESSMENT

An ERA has been undertaken as part the Accident Prevention and Management Plan attached as Appendix I.

This has been undertaken in accordance with GOV.UK guidance: Risk assessments for your environmental permit and covers the following steps:

- Step One – Identification of hazard;
- Step Two – Identification of receptors;
- Step Three – Identification of pathways between sources and receptors;
- Step Four – Assessment of risks;
- Step Five – Controls for risks; and
- Step Six – Presentation of the results.

Odour, noise, fugitive emissions, visible emissions, discharges and accidental releases from the installation are all considered in the ERA submitted as part of this application.

The AERA (Appendix C) will discuss the emissions to air in more detail. Appropriate mitigation and emergency response procedures will be in place and are detailed in the ERA (Appendix I) and the Mitigation Strategy (Appendix L).

5.1 Emissions to Water

There are no direct discharges to surface waters from the combustion activity. Site drainage associated with the combustion activity will be limited to surface water run-off from the wider construction site and will be managed under a separate water discharge permit. An application for this permit has been submitted but has not yet been determined.

Pollution prevention measures are discussed in the Directly Associated Activities Section.

5.2 Emissions to Sewer

There are no proposed point source emissions to sewer from the installation's activities.

Pollution prevention measures are discussed in the Directly Associated Activities Section.

5.3 Emissions to Land

There are no proposed point source emissions to land from the installation's activities.

Pollution prevention measures are discussed in the Directly Associated Activities Section.

5.4 Emissions to Air

The emission point locations and working areas are shown in Appendix C.

For the purposes of the ERA, the EA guidance 'Unclassified, Emissions from generators (Version 1) Guidance on dispersion modelling for oxides of nitrogen assessment from generators' states that where a generator is run on gas oil (diesel) only, NOx is the primary pollutant of concern.

The AERA (Appendix C) concluded the following:

- **Human receptors**: there are no exceedances predicted of the UK air quality objectives for all pollutants and averaging periods considered in this assessment. The predicted increase in ambient air pollutant concentrations at human receptors screens out as insignificant based on the EA criteria for assessing air emissions for an environmental permit application.
- **Local designated sites**: all modelled impacts screen out as insignificant.
- **National and international sites**:
    - There are no exceedances of annual and daily mean NOx and annual mean SO_2 critical levels at all national and international sites. The predicted increase in concentration screens out as insignificant according to the Environment Agency (EA) screening criteria. Impacts from annual NH_3 emissions screen out as insignificant for receptors E1 (Alde-Ore & Butley Estuaries) and E3 (Orfordness-Shingle Street). Impacts on annual mean NH_3 do not screen as insignificant at receptors E2 (Minsmere-Walberswick Heaths and Marshes), E4 (Sandlings), E5 (Sizewell Marshes) and E6 (Leiston – Aldeburgh).
    - Nitrogen deposition screens out as insignificant at receptors E1, E3, and E6. Acid deposition screens out as insignificant at all sensitive habitats.

Analysis of the results pertaining to ecological impacts, including determination of the significance of any effects resulting from air quality impacts, is detailed in the HRA provided in Appendix K.

5.5 Noise

The proposed activities will produce noise emissions from operation of generators on site. The SZC Noise Monitoring and Management Plan (NMMP), sets out procedures and controls to limit noise for all construction works (including emissions from generators) to comply with DCO planning noise limits based on the DCO Noise Impact Assessment (NIA) (Appendix E). As agreed in the DCO modelling, a new, separate NMMP will be produced for each area of work and discharged to East Suffolk Council (ESC) before the start of the works, setting out the criteria for which a bespoke mitigation plan may be required. The standard BS 4142:2014 + A1:2019 *Methods for rating and assessing industrial and commercial sound* (BS 4142) [5] is not considered appropriate for the assessment of construction noise, as stated within Section 1.3: "*The standard is not intended to be applied to the rating and assessment of sound from…: d) construction and demolition*." The DCO (PINS Reference EN010012) states the noise thresholds and potential effects from construction noise, which includes generators, and the potential impacts have been assessed in line with BS 5228-1:2009 + A1:2014 *Code of practice for noise and vibration control on construction and open sites – Part 1: Noise* [6] (BS 5228). BS 5228 is the code of practice for construction noise and vibration, approved under the Control of Pollution Act 1974 [7]. The Project is committed to complying with these thresholds throughout the construction works and individual NMMPs will be agreed with ESC ahead of each phase of works.

For ecological receptors, noise was considered within Chapter 14: Terrestrial Ecology and Ornithology of the DCO [8] and the DCO Habitats Regulations Assessment (HRA) [9], with the latter stating that a precautionary assessment of disturbance affects, which accounted for overlapping construction phases and modelled the longest construction phases, was undertaken. The final Code of Construction Practice (CoCP) [10, 11] states mitigation that would be installed as early as is practicable in the construction process, with the locations secured by DCO Requirement 13 (the NMMP). The installation of additional barriers as a potential intervention measure, following proposed monitoring of breeding waterbirds, is also included in the Terrestrial Ecology Monitoring and Mitigation Plan (TEMMP) [12], as secured by Requirement 4 of the DCO.

All generators within the SZC construction site will comply with the noise restrictions set out within DCO NIA and NMMP. Furthermore, the cumulative impact of these generators will be minimised by adopting the appropriate mitigation measures detailed within the NMMP and IEMP (Appendix F) plus any additional

measure determined in future NMMPs. Noise Monitoring equipment is to be set up surrounding the SZC construction site perimeter and will automatically notify the relevant personnel if a breach of the trigger level occurs (3 dB below the noise limit threshold of 60 dB $L_{Aeq,T}$ 07:00 to 23:00, 45 dB $L_{Aeq,T}$ 23:00 to 07:00 and 60 dB L_{Amax} (façade) 23:00 to 07:00). Action will then be taken to reduce noise to below the trigger level.

Working hours on site are restricted, with construction and operation of welfare facilities prohibited between the hours of 23:00 and 07:00 unless RAMS are produced to display that noise limits will not be exceeded and that suitable mitigations are in place.

In the event of a complaint, SZC will follow the prescribed complaints procedure and will undertake further monitoring and/or appropriate remedial action.

5.6 Odour

Odour may arise from the storage of fuel at the site and refuelling activities however, the probability of significant odour is considered as low. The SZC site is designed to contain all odours and emissions associated with fuel bulk storage. The most likely release of odour will result from the refuelling activity, when dedicated bulk fuel transport vehicles will be used with trained operatives undertaking the delivery under SZC supervision.

Refuelling operations on site will take place as and when required with fuel delivered in dedicated vehicles by SZC operatives. Refuelling activities at each generator location are limited in their duration and therefore odour will be limited. Odour is not expected beyond the proposed permit boundary.

The refuelling vehicle will connect to the day tank via a hose and draw the gases from the tank back to the refuelling vehicle whilst replenishing the day tank to reduce the release of any localised Volatile Organic Compounds (VOCs) which could cause odour nuisance.

5.7 Dust

None of the activities described in this permit application will generate significant dust. The main potential to generate dust is from vehicle movements with mud being tracked on to site from local roadways. Road sweepers will clean access routes and main trafficked areas on site.

Any dust complaints will be investigated in accordance with the complaint's procedure. Any corrective actions identified will be implemented accordingly.

6 MITIGATION STRATEGY

Measures and targets will be put in place to reduce the emissions footprint of the construction phase. Although SZC is a major construction project, the phase where generators are used as the primary source of power is time limited. As the CES is implemented and the project moves from civils into the future fit out and commissioning phases, reliance on generators across the site will naturally diminish.

In order to control the use of generators on site, a number of initiatives have been implemented to ensure that SZC is managing emissions effectively.

A full inventory of generating equipment will be retained on site within the Integrated Emissions Management Protocol (IEMP) (Appendix F). The IEMP details the arrangements and controls that will be in place for the management of the construction combustion activity and describes the data that is available and will be collated and reported by SZC. The inventory will remain 'live' due to the dynamic nature of the construction site. This will help track generator use and ensure that the site needs are met with the appropriate number of generators. Further to the above, the key mitigation measure being implemented at the SZC construction site is the installation and operation of the CES for the project. This involves the construction of a number of sub-stations and connection feeder pillars across the construction site to allow contractors to use mains power in as much of the construction site as possible. Further details on the CES of this are provided below.

A mitigation strategy has been provided in Appendix L to demonstrate the operational, technological, and ecological management measures which have been adopted so far and could potentially be adopted at the SZC site.

6.1 Construction Electrification Supply

The key mitigation for the SZC project is the completion of the CES. There are three main power connections planned for the MDS. An 11 kV 4MVA supply from the Sizewell B substation may be available in 2024 for temporary buildings in the MCA, TCA and desalination plant. The ACA is anticipated to obtain a 11 kV 1.5 MVA supply from a distribution network operators' connection, which will be provided in 2024. The primary electrical power will be the 132 kV 45MVA feeders from the National Grid Leiston substation to the site CES, which is forecast to be commissioned in 2027.

Additional applications have been made to the distribution network operator for a Temporary Builders Supply of approximately 1.7 MVA to various connection points across the Main Development Site.

Once installed, mains power will be available to support the majority of the construction power needs, reducing the site's reliance on the use of generators.

7 MANAGING ACTIVITIES

7.1 Management System Requirements

Consideration of the proposed management systems for the following aspects has been undertaken and is summarised in the following sections below:

- Operation and maintenance;
- Organisation;
- Compliance control;
- Accidents, incidents and non-conformance;
- Contingency plan;
- Staff responsibilities and training; and,
- Record keeping.

7.2 Management Arrangements

SZC operates an IMS which outlines the arrangements that shape and guide the way the business works and provides the framework for maintaining and demonstrating compliance. It consists of the Company Manuals, Policies, Standards and Procedures.

The ISO 14001:2015 accredited EMS is an integral part of the company IMS. It provides a structured system of environmental arrangements and associated tools to identify, manage and mitigate environmental aspects and impacts and achieve and maintain legal compliance. SZC will be adopting the EMS of its parent company. The ISO 14001 accreditation certificate is available in Appendix G. Please note that the certificate is in a previous company name, NNB Generation Company (SZC) Ltd.

Contractors are contractually bound to adhere to the arrangements described within the SZC IMS. Contractors are required to produce a CEMP which sets out how they will manage and mitigate their environmental impact on site and how they will comply with SZC contractual requirements and their own legal requirements.

As part of the IMS, SZC maintains all necessary documents for operational planning and control on a site-specific basis. This includes relevant site infrastructure plans containing the information detailed in the relevant guidance.

7.3 Operation and Maintenance

To ensure that permit compliance is maintained, the following actions will be undertaken:

- Complete a compliance matrix to understand which arrangements are required to meet each permit condition;
- Add permit requirements to the relevant site written arrangements. This can include subject specific management plans, and monitoring schedules;
- Supply both the permit and requirements (primarily within subject specific management plans) to contract partners to deliver, where appropriate;
- Review and accept contractor documents (management plans, operating and maintenance manuals, sampling and monitoring procedures) to ensure all work activities include permit requirements
- Provide training and awareness sessions to those who will be undertaking activities under the permit;
- Undertake monitoring, recording and reporting; and

- Audit against permit requirements.

An Integrated Emissions Management Protocol (IEMP) is included as part of the application and sets out monitoring emissions and reporting arrangements. This is to demonstrate compliance with the environmental permit and ongoing improvements in accordance with the mitigation strategy presented. It is proposed that the IEMP will be a live site level document that will be regularly reviewed and updated to ensure that it represents the most up to date information available and will be agreed with the EA.

Additional written arrangements, that are specific to only the construction activity, will be implemented through the IMS and could include but not be limited to:

- Site inspections and audits schedule;
- Details of operating plant;
- Plant Inspections and Maintenance including Planned Preventative Maintenance;
- Oil and Fuel Delivery and Filling / Replacement; and
- A full inventory of generating equipment will be retained in the IEMP.

7.4 Organisation

7.4.1 Management Structure

Details of the SZC over-arching leadership and governance structure are presented in the Company Manual. The importance of environmental leadership has been embedded at all levels of the SZC Project and its EMS, with ultimate accountability sitting with the Board of Directors.

The SZC Board has responsibility for Safety and Environmental Management and is ultimately accountable for all safety, environmental and security related decisions. The Board are responsible for ensuring excellence in safety, environment and security is at the forefront of what the organisation do. This will be achieved through:

- Establishing and implementing effective safety, security, health, and environmental management policies based on national and international best practice and guidance, as well as legislative compliance and compliance with all its consents, licences and permits (including the DCO) as well as other legal obligations (for example measures secured through the land agreements);
- Establishing and maintaining a risk assessment and work authorisation process to manage industrial hazards;
- Overseeing that sufficient “competent persons” and other resources are provided to execute all nuclear licensed, permitted, and consented activity;
- Overseeing Safety, Environmental and Security performance, including receiving and reviewing reports and implementing recommendations from the Safety, Health, Environment, Social and Sustainability Committee and the Security Committee;
- Ensuring a culture of constructive challenge to seek opportunities to improve including ensuring a systematic robust challenge from Independent Nuclear Assurance as well as independent review of designs, safety, and environmental documentation;
- Overseeing the implementation of adequate arrangements to control any change to the organisational structure or resources which may affect safety or environmental management;
- Ensuring Safety and Environmental Management takes priority over commercial performance objectives;

- Ensuring the effectiveness of safety, security, radiation protection, environmental, decommissioning and emergency arrangements; and
- Overseeing an effective safety, health, and environmental management culture, specifically implementing a strong nuclear safety and environmental management culture within the project enabling a proactive identification and mitigation of safety hazards and ensuring that environmental impacts are as low as reasonably achievable.

The Environmental, Social Governance (ESG) department includes Sustainability Assurance, Funded Decommissioning and Nuclear Liabilities Capabilities, ESG Strategy and external Policy and Regulation for related topics on behalf of SZC. The management of environmental compliance and securing and maintaining the environmental permits, licenses and consents is within the Safety, Security and Assurance Directorate. However, to acknowledge that the decisions made by the wider project can have an impact on environmental management and compliance, the project has established an "environmental baseline" which identifies all the posts within the SZC organisation that can make such decisions and assigns them several competency requirements, via the use of Role Training Profiles.

There is an Environmental Surveillance Guidance Note which also sets out how the SZC Environment Team engages in, and conducts assurance of, its Supply Chain, Design Change Process and site activities. This, and any relevant corresponding procedures, will be applied to the proposed discharging activities as considered necessary.

7.4.2 Environmental Roles and Responsibilities

Roles and responsibilities specifically in relation to environmental management are set out in the EMS Manual; these are summarised below:

- SZC Board of Directors – hold ultimate responsibility for all environmental management decision-making.
- Executive Leadership Team – responsible for operational management of the business (delegated authority by the Board). The Board is additionally in the process of establishing a Safety, Health, Environment, Social and Sustainability Committee; a formal board committee to provide independent advice, oversight and challenge to the project on behalf of the Board of Directors. The Safety, Security and Assurance Director sits within the executive team. They are responsible for establishing and enabling a culture of quality, safety and environmental management through implementation of policies and practices that set out standards.
- SZC Environmental Consenting and Compliance. This department includes the environmental Permits and Consents team who are responsible for permit applications, regulatory engagement and handover of permit requirements to the SZC project. The permitting function sits alongside the Environmental Oversight Team who ensure compliance with permits and other environmental requirements.
- SZC Quality Assurance Team – Sits within the Security and Functional Assurance Function in the Safety, Security and Assurance Directorate. The team has responsibility for the project IMS, quality assurance oversight and surveillance activities and the internal audit programme. The team assures the policies, standards and written arrangements that make up the IMS to meet changing requirements throughout the project life-cycle. This team is also responsible for interfacing with external certification bodies and compliance with ISO management system standards, 9001 and 14001.
- SZC Other Head of Disciplines, Team Leaders and Managers – to lead their teams to take a personal responsibility to work within the SZC EMS.
- SZC All Staff – All staff, including embedded contractors, have a personal responsibility to work within the SZC EMS to ensure continual improvement.

- SZC Contractors – The external supply chain is to work with the SZC integrated EMS and to comply with the environmental requirements as stipulated by SZC.

In addition to the EMS Manual defined roles and responsibilities, there is a Project Execution Plan which describes the full scope of the SZC project and provides a further high-level overview of key project roles and responsibilities.

7.5 Compliance Control

SZC is proposing to manage the day-to-day compliance controls for the construction combustion permit via the IEMP.

Further to the inventory of equipment on site the IEMP will contain the protocols, agreed with the EA, for measuring and recording emissions from the site and each of the designated operational areas (MCA, TCA and ACA). This is likely to be based on telemetry available from the contracted generating equipment. This includes run hours and loading therefore calculations of the mass emission loadings over a given periodicity can be recorded and reported in accordance with the Environmental Permit.

All reports required to comply with the permit will be provided to the EA as detailed within the environmental permit when issued. The reports will be retained in accordance with the procedures outlined in the appropriate sections of the permit.

7.6 Accidents, Incidents and Non-Conformances

SZC maintain an organisational learning tool (Insight) that is used to record observations/non-conformances/good practice etc.

Where accidents, incidents and non-conformances arise they will be dealt in accordance with the sites Accident Prevention and Management Plan (Appendix I). Contractors must have a CEMP approved by SZC prior to working on the site. These measures are in place to ensure that every person working on-site is aware of the risks associated with the work and how to minimise them by following the appropriate procedures.

Visitors have their credentials verified and go through a onboarding process. They are escorted by an appropriate member of staff while on site. Arrivals and departures are recorded.

7.7 Contingency Plan

The contingency plan outlines how the site will minimise its impact to the environment in the event of a breakdown, enforced shutdown and any other changes in normal operation and can be found in Appendix J.

7.8 Staff Responsibilities and Training

The EMS will indicate who is responsible for overseeing different procedures and activities and it will contain a record of who carries out each of the associated roles. All staff will receive the appropriate training to carry out their duties and a record of refresher training or qualifications taken/obtained by staff or contractors will be maintained.

Toolbox talks will be given to contractors and their employees, where relevant, to disseminate lessons learned from incidents to further aid in preventing their recurrence.

All members of permanent staff must undergo vetting and onboarding procedure prior to working on the site. The procedure ensures that staff understand the site's requirements with regards to environmental management and health and safety so that the risk of an incident is minimised.

7.9 Complaints Procedure

A 24-hour hotline will provide means of receiving and addressing complaints related to construction activity and the construction workforce. The 24-hour hotline will be publicised on the internet and locally in locations such as site hoarding, site entrances, and in the local newspaper.

All complaints received by SZC will be logged, with the details of the complaint and contact details of the complainant recorded. The complaint shall be acknowledged in writing, by email, or by telephone, within a reasonable period after the complaint has been made, but within two working days. The acknowledgement shall contain details of the next steps to be taken. Details of all received complaints shall be promptly communicated to ESC, or other statutory bodies such as the EA as may be appropriate, subject to any personal data being treated in accordance with the SZC privacy notice.

All complaints shall be considered by SZC and complaints shall be investigated where this is considered necessary and appropriate.

7.10 Record keeping

A record of the relevant information, as per the "Develop a management system: environmental permits" guidance will be maintained as part of the EMS. All relevant records will be formally approved documents and stored on SZC's document management system, Teamcentre. Staff competence and training records will be held on the "My Learning" system for all SZC employees. Contractors training checks would be made as part of the vetting and induction process.