

Sizewell C Project
Combustion Activity Permit Application
Appendix F: Integrated Emissions Management Protocol

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1 INTRODUCTION

The purpose of this document is to support the Sizewell C (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. The permit shall enable the generation of electricity on site during the construction phase of the nuclear plant build project.

Generators shall provide essential power for the project particularly for welfare, security, and lighting. The anticipated power requirement from generators could exceed 50 Megawatt Thermal (MWth) during the peak construction period. As such an installation activity environmental permit is required.

This document shall accompany the application for this permit and will list control measures for the reduction and mitigation of emissions. This includes fugitive emissions to air, noise and vibration and dust management.

1.1 Scope

This Integrated Emissions Management Protocol (IEMP) will detail the management arrangements for the site to ensure compliance with the installation environment permit.

The document outlines the methods by which the site will manage and monitor generators, reporting and compliance data requirements specified in the permit, emission reduction methods, air quality monitoring and the key roles that will be responsible for delivering the arrangements detailed within this IEMP.

The document will be maintained as a live document, updated and reviewed as required to reflect the changing nature of a dynamic construction site. The intention of the IEMP is to control emissions from the permitted activity during the lifetime of the permit.

1.2 Definitions

Term / Abbreviation	Definition
ACA	Ancillary Construction Area
AD	Associated Developments
BAT	Best Available Techniques
CCGT	Closed Cycle Gas Turbine
CEMP	Construction Environmental Management Plan
CES	Construction Electrification Supply
DMMP	Dust Monitoring and Management Plan
EDRMS	Electronic Document and Records Management System
EMS	Environmental Management System
ESC	East Suffolk Council
IEMP	Integrated Emissions Management Protocol
MCA	Main Construction Area
MDA	Main Development Area
MDS	Main Development Site
MWth	Megawatt Thermal
NMMP	Noise Monitoring and Management Plan

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Term / Abbreviation	Definition
NRMM	Non-Road Mobile Machinery
OCGT	Open Cycle Gas Turbine
SZC	Sizewell C
TCA	Temporary Construction Area

1.3 References

Ref	Title	Location	Document No.
1	DCO Requirement 2: Dust Monitoring and Management Plan – Associated Development and Fen Meadow Sites	https://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=S7V6QJQX07400	DC/24/0278/DRR
2	DCO Requirement 2: Dust Monitoring and Management Plan – Main Development Site (Post-Commencement)	https://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=S7NVOWQX06000	DC/24/0224/DRR 42
3	DCO Requirement 2: Noise Monitoring and Management Plan – Main Development Site (including Land East of Eastlands Industrial Estate)	https://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=S867Z6QX06000	DC/24/0363/DRR 423

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2 SITE OVERVIEW AND GENERATOR MANAGEMENT

The construction of SZC considers several working areas with varying generator power demand needs. A brief outline of the working areas and generator locations is presented as well as their proposed management and monitoring.

2.1 Site Setting and Power Requirements

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) comprises of the below working areas and several sub-areas as follows:

- MCA – Main Construction Area (NGR: TM 47284 64085):
 - o MCA deep dig
 - o MCA perimeter
- TCA – Temporary Construction Area (NGR: TM 46235 64729):
 - o TCA compound south east (TCA SE)
 - o TCA compound south west (TCA SW)
 - o TCA compound north east (TCA NE)
 - o TCA stockpiles
 - o TCA rail
- ACA – Ancillary Construction Area (NGR: TM 45592 62778)

The working areas covered in this IEMP, and detailed above, where generators and cranes will operate as modelled in the Air Emissions Risk Assessment (Appendix C of the Supporting Information Document (SID)) are presented in Figure 2.1. The locations in Figure 2.2 shows the expected locations of the static generators required at peak demand, expecting to start in 2025 and lasting for a 12 to 18 month period, these are planned to be strategically positioned where the eventual connected electricity supply will become available. The location and inventory of generators on site will be managed by Site Operations.

A Construction Electrification Supply (CES), detailed in Appendix L of the SID, is scheduled within 2027 and will be the primary mitigation measure implemented on the SZC site. This will involve 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 many areas as possible.

Table 2.1 presents the MWth for each working area.

Table 2.1 – Summary of power demand per area

Location	Equipment	Total MWth
MCA deep dig	Lighting/cranes	8.35
MCA perimeter	Lighting/cranes	0.07
	Welfare/general construction	7.2
TCA SE	Lighting/cranes	2.76
	Welfare/general construction	31.2
TCA SW	Lighting/cranes	0.39
	Welfare/general construction	19.0
TCA NE	Lighting/cranes	1.19

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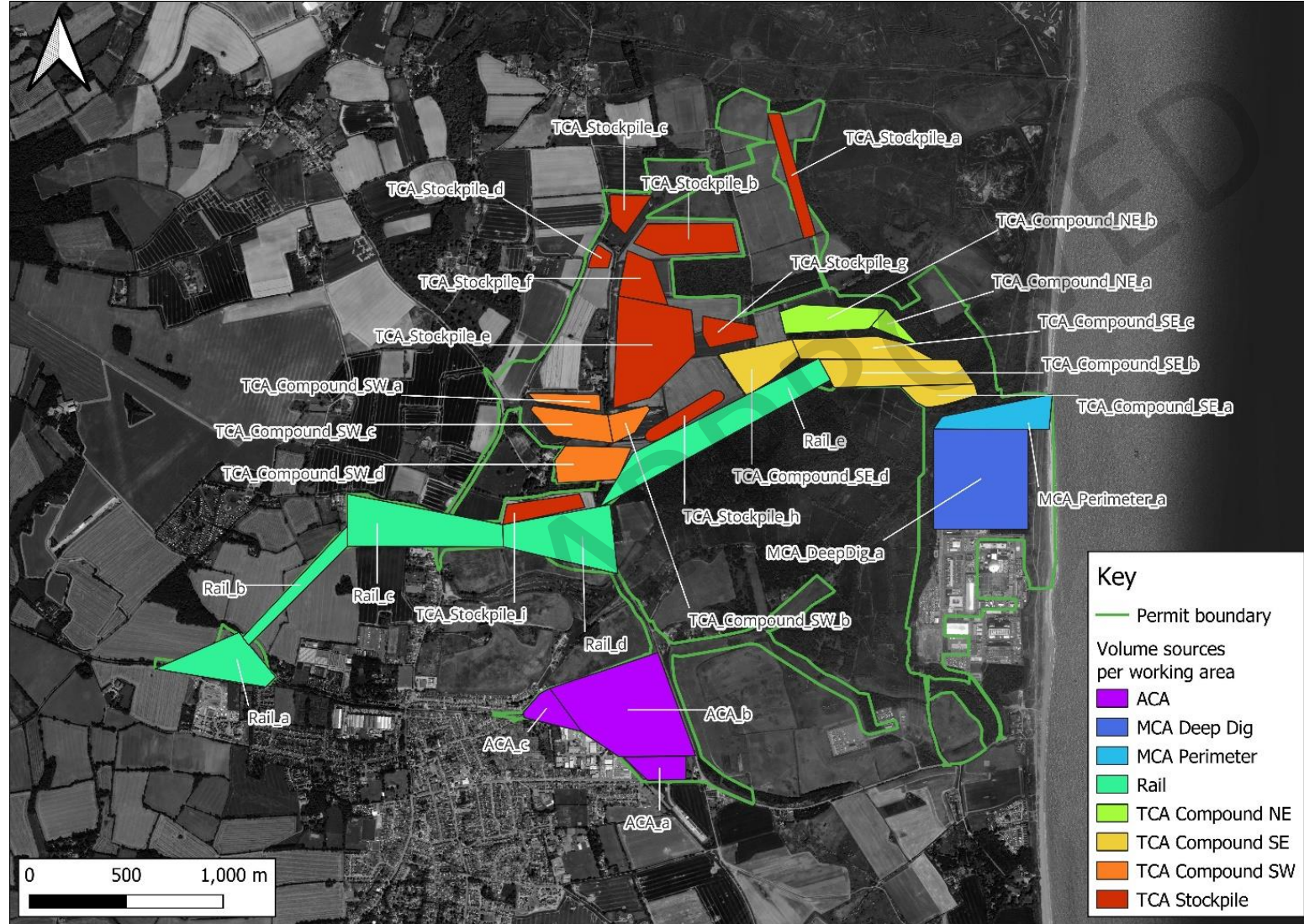
Location	Equipment	Total MWth
	Welfare/general construction	3.6
TCA stockpiles	Lighting/cranes	0.1
TCA rail	Lighting/cranes	0.1
	Welfare/general construction	1.0
ACA	Lighting/cranes	0.3
	Welfare/general construction	7.2

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Figure 2.1 – Working Areas

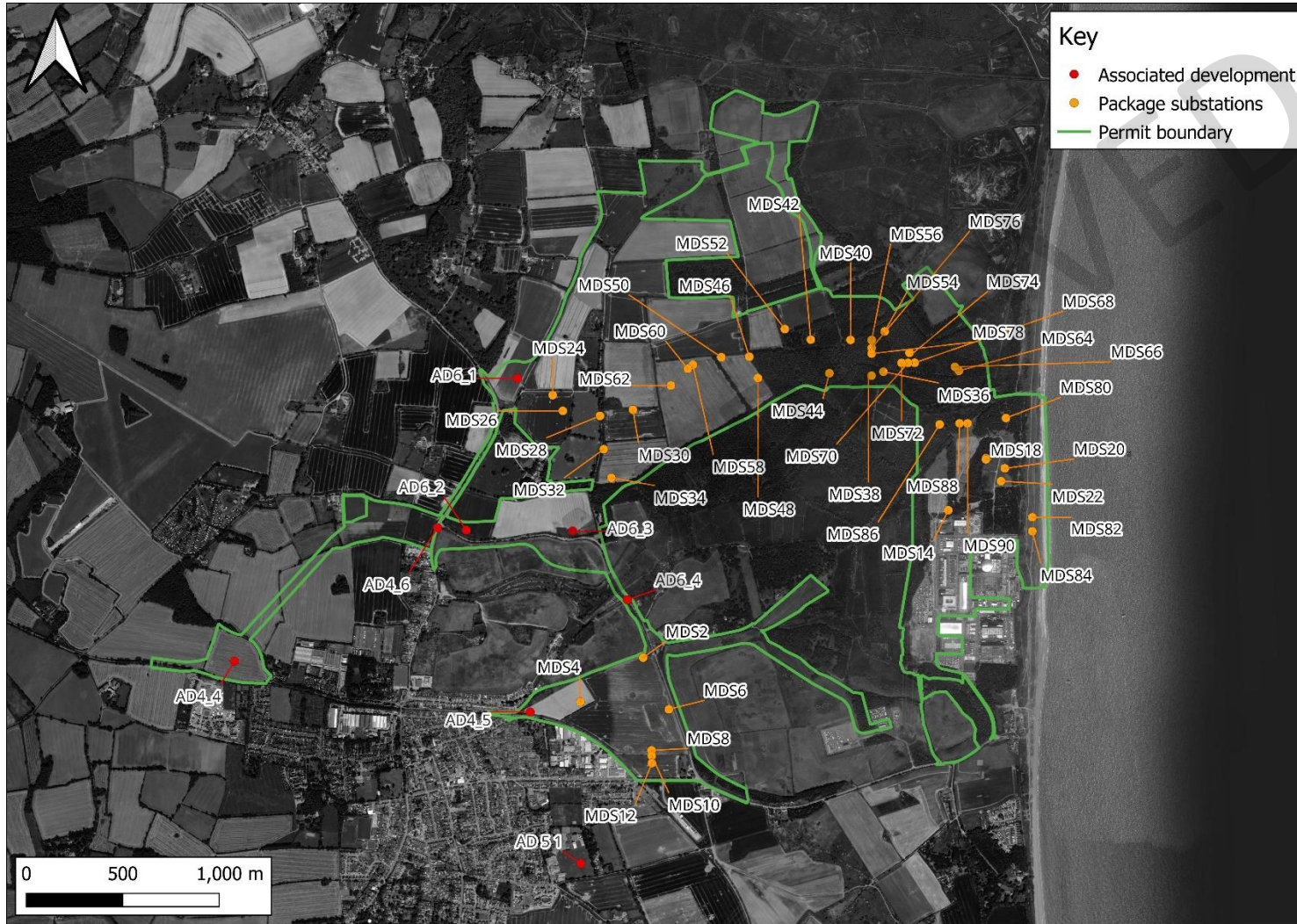


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Figure 2.2 – Peak construction modelled generator locations



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2.2 Site generator permit / delivery management

The SZC generator Inventory Management system is an upstream control which has been implemented on site to control generators prior to them being used at site. This Inventory Management system provides visibility and control of the power requirements of site and how this is distributed across the various work areas, driving increased efficiencies in the use of existing generators on site and ensuring that energised substations or feeder pillars on the CES are utilised as a priority.

- Site Operations Electrical Assurance Team (Owner of the permit system) – Will monitor the generation within the permit boundary to ensure compliance against the limits and requirements stipulated within the permit.
- Site Environmental Oversight Manager – Will perform surveillance and checking of data of generators in place, including number and locations of generators already permitted.

2.3 Telemetry data/monitoring /loadings

To understand the utilisation / loading of generators across site and to enable compliance monitoring against the scenario modelled as part of the permit application as detailed in Section 5, telemetry data will be utilised from all available generators.

Approved suppliers, who will supply the majority of generators on-site (currently greater than 75% of generators) will have Deep Sea telemetry modules fitted to their whole fleet of generators. These telemetry modules enable the operator to remotely review the operating performance data of each generator and are also fitted with GPS units to identify its position on site.

The telemetry units currently can record point samples at every 30-minute intervals, this can be increased to minute intervals, but there are significant data usage implications on sampling at this frequency, with minimal added value. Key operating performance data that are recorded include:

- Run Hours
- Starting kWh
- Finishing kWh
- Total kWh
- Average Running Load (kW)
- Minimum Running Load (kW)
- Maximum Running Load (kW)
- Average Fuel Consumption (Litres)

Live telemetry data from generators is also able to be viewed from a desktop and an app-based interface, providing real-time statistics on all operating generators.

To ensure generators which do not have inbuilt telemetry are included in compliance reporting, standard values for each generator unit size will be calculated and applied based on a 12-month rolling average for kWh output.

Approved suppliers will undertake planned preventative maintenance on all their hire fleet on site with service intervals of around 500 run hours based on age of the generator and service history. Preventative maintenance includes inspection of critical components, but not limited to the engine, cooling system, fuel system, and electrical components, also the routine tasks such as oil and filter changes, inspection of belts and hoses, lubrication of moving parts, and testing of safety systems. Additionally, they will assess the generator's performance parameters to ensure optimal efficiency and emissions compliance.

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In addition to scheduled maintenance, approved suppliers will have onsite engineers readily available to respond to any unforeseen issues or concerns reported. This includes addressing any instances of excessive black smoke or abnormal noise during operation, which are indicative of potential performance issues requiring immediate attention. The proactive approach not only ensures the reliability and longevity of our equipment but also minimizes downtime, maximizing operational efficiency.

In the absence of telemetry for a given reporting period due to unforeseen issues with the hardware / software, standard values will again be used for each generator unit size based on a 12-month average for kWh output and applied to any missing value.

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3 IMPROVEMENT CONDITIONS / MITIGATION

As this is a live document which will be maintained throughout the operational life of the permit, any improvement conditions associated with the Environmental Permit and how they are discharged will be added here. Mitigation measures are detailed in the Mitigation Strategy (Appendix L of the SID) and will be regularly updated in parallel with this IEMP.

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4 ENVIRONMENTAL MANAGEMENT PLANS

4.1 Overview

This IEMP sets out how SZC will manage emissions and deliver future reductions of emissions from the construction site. It also defines how data will be utilised to inform and demonstrate compliance with the proposed Mitigation Strategy (Appendix L of the SID). In terms of the Construction Installation activity, the key elements that make up the environmental management system for this permit will be as follows:

- IEMP (this document) – Describes the site activities, mitigation measures (further discussed in Appendix L of the SID) and compliance monitoring requirements.
- Environmental Permit Compliance Matrix – Describes the roles, responsibilities and key written arrangements within the organisation for ensuring compliance with the conditions of the permit.
- Air Quality Monitoring Program – Real time monitoring of air quality at receptor locations.
- Noise Monitoring and Management Plan – Noise and vibration control measures.
- SZC Site Generator Inventory System – Controls the introduction of new generators to site.
- Construction Electrification Supply Programme – Tracks the progress of the implementation of the CES on site at SZC.

In addition to the above, SZC Environmental Management Plans have a range of control measures to prevent and reduce emissions and nuisance from the site. A summary of these documents and their scope is outlined below.

4.2 Air quality monitoring program

The Air Quality Monitoring Program sets out the requirements, controls and mitigations in relation to the management of gases and stored gas systems. SZC construction activities will be undertaken in compliance with these requirements and associated legislation, regulations and permitted activities. The program is appended to this document at Appendix F1. This program is being used to develop site requirements and other procedures and plans related to the Air Quality Monitoring Program.

Real time monitoring instrumentation for air quality will be installed at nearby receptor locations, appropriate to the nature of the site and works being undertaken. Further air monitoring will be laboratory sampled monthly. The real time monitoring instrumentation will be installed with remote access capabilities to allow rapid response and investigation of any air quality issues or complaints. Additional passive monitoring is also proposed at the adjacent ecological receptors.

Example control measures detailed in the plan include:

- Engines of vehicles and equipment shall not be left running unnecessarily.
- Maintain vehicles and equipment through a programme of routine servicing completed in accordance with the manufactures recommendations and keep records for the work undertaken.
- Reduce the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable and as soon as available.

Adherence to the appropriate control measures detailed within this plan will form part of the Environmental Management System (EMS) for the Construction Combustion Environmental Permit. Data from the EMS can be used to support reporting requirements as part of any permit conditions applied.

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4.3 Dust Monitoring and Management Plan (DMMP)

The Dust Monitoring and Management Plans provides a summary of the good practice measures to control air quality and dust emissions adopted on the Main Development Site and Associated Development sites. They set out the approach to monitoring, good practice control measures and set out distinct zones in the MDS and ADs in which to apply the relevant control measures. The complaints procedure is also set out in the DMMP.

The MDS DMMP splits the MDS into 7 distinct zones listed below:

- Zone A – The Main Construction Area (MCA)
- Zone B1 – The Temporary Construction Contractor Area
- Zone B2 – The Rail Head
- Zone C – The Temporary Borrow Pit and Spoil Storage Areas
- Zone D - Accommodation Campus
- Zone E – Ancillary Construction Area (ACA)
- Zone F – Sizewell B Relocated Facilities

In addition to the MDS DMMP, the AD DMMP covers AD4 (the rail route) to the west of Abbey Road.

The DMMP's set out appropriate procedures to manage, control and mitigate emissions, as well as detailing investigation and appropriate response actions. Generic control measures that apply to all identified zones within the MDS and ADs have been identified, as well as specific control measures for certain zones/areas. Examples of these generic measures include:

- Adequate water supply for dust/particulate suppression and housekeeping.
- High risk activities will be minimised during prolonged dry or windy conditions.
- Site access will be located as far as practicable from sensitive receptors.
- Site layout planned so that significant dust generating activities will be located as far as possible from the site boundary and sensitive receptors.
- Use of hardstanding areas and hard surfaced roadways where practicable to reduce vehicle movements on unmade ground.

The DMMP's outline the monitoring and reporting approach to demonstrate the effectiveness of the measures listed. The parameters for monitoring requirements are listed below.

- Gas and particulate concentrations – NO₂, PM₁₀ and PM_{2.5} and monitored with indicative low-cost sensors.
- Dust deposition – This will be measured in mg/m²/day and be monitored via combined dry foam frisbee gauge and directional sticky gauge.
- Visual Inspection for evidence of dust release or surface soiling.

The DMMP's describe the monitoring locations for each of these parameters. There are 13 monitoring locations for the site listed in total for the MDS and an additional location listed for AD4.

The DMMP's are available on the East Suffolk Council (ESC) Planning Portal, however, the AD DMMP F2 is currently a draft document which is going through the discharge process with ESC. The relevant ESC references for the documents are:

- DC/24/0278/DRR¹ for the draft AD DMMP
- DC/24/0224/DRR4² for the MDS DMMP

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4.4 Noise Monitoring and Management Plan (NMMP)

This plan acts as a framework incorporating a range of noise monitoring and management measures which reflect best practice techniques, to be employed during the undertaking of construction activities within the MDS. It relates to the monitoring and management of activities between source and receptor, namely noise and/or vibration management from sources to affected adjacent properties.

All generators within the SZC construction site will comply with the noise restrictions set out within DCO Noise Impact Assessment and Noise Monitoring and Management Plan (NMMP). The cumulative impact of these generators will be compliant with the NMMP, which is available on the ESC Planning Portal under ref. DC/24/0363/DRR42³, by adopting the appropriate mitigation plus any additional measure determined in future NMMPs. To monitor noise levels a static noise and/or vibration monitoring system will be put in place prior to certain activities on site, such as earthworks, and remain for the entire duration of the construction phase. There are a total of 16 proposed monitoring locations, considered to be representative of noise sensitive receptors close to construction works. The monitoring equipment will automatically notify the relevant personnel if a breach of the trigger level occurs (3 dB below the noise limit threshold of 60 dB 07:00 to 23:00, 45 dB 23:00 to 07:00 and 60 dB (façade) 23:00 to 07:00). Action will then be taken to reduce noise to below the trigger level. Further detail of these can be found in Section 6.2 of the NMMP.

The NMMP also details the complaints handling process relating to noise and vibration, should any be received, as well as any standard control and mitigation measures planned for the MDS. Example control measures in the plan include:

- Working hours within the MDS will be 24/7, with the exception of earthwork operations at the borrow pits, which will be restricted to the hours of between 0700 and 2300.
- Staggering or restricting certain activities to less sensitive periods.
- Notifying local communities of any potentially noisy or disruptive works.
- Erection of physical acoustic barriers to reduce noise to adjacent dwellings.
- Use of designated haulage routes on site, and maintenance of such routes to reduce noise from vehicles.
- Loading/Unloading activities will be carried out away from sensitive receptors.

Adherence to all the appropriate control measures detailed within the NMMP will form part of the EMS for the Construction Combustion Environmental Permit.

5 COMPLIANCE REPORTING

5.1 Overview

It is recognised that reporting will be required by the Environment Agency under the conditions of the permit relating to progress and compliance with this IEMP. Details on the proposed reporting by SZC as well as relevant reporting already undertaken is provided below.

5.2 Reporting

SZC discussed possible reporting metrics and frequencies for the Construction Combustion Environmental Permit during the pre-application phase and has detailed below the example required reporting to be provided to the Environment Agency. This will likely include an annual report detailing the performance of the activities over the previous year, the agreed reporting period for the submission of this data will be agreed through the determination of this permit.

5.3 Compliance calculation methodology

To calculate monthly kg of Oxides of Nitrogen (NO and NO₂ expressed as NO₂) for compliance reporting with the Construction Combustion Environmental Permit, two methods will be used based on the presence/absence of telemetry on the generators.

5.3.1 Telemetry Available

For all generators with onboard telemetry, the supplier is able to provide a summary of all the metrics shown in Figure 9. This includes total run hours for any given period. The run time per unit is multiplied by the known NO_x emissions parameters for the unit (gNO_x); this is then divided by 1000 to give the total Kg Oxides of Nitrogen (NO and NO₂ expressed as NO₂) for that generator in a given period.

The values for all generators with telemetry are then totalled by working area and reported against the monthly average annual limit.

5.3.2 No Telemetry

For generators that do not have onboard telemetry, or where run hours are only available by taking manual readings from individual generators, standard monthly values will be produced based upon 12 months of telemetry data on each generator size class.

The standard month values will be an average of 12 monthly run hours for the following generator sizes; 30, 60, 100, 125, 200, 320, 350, 500 and 1250kVA. These range covers both the early works generators and the larger package substation generators. These values will be multiplied by 3 to give the quarterly values for the return. If a generator does not fit perfectly in the standard value size classes, the closest size class will be used.

This process will be repeated for all generators without telemetry and summed to produce combined values for Kg Oxides of Nitrogen (NO and NO₂ expressed as NO₂) following the same method as outlined above per working area.

The Kg emissions of Oxides of Nitrogen (NO and NO₂ expressed as NO₂) for the generators with telemetry and without will then be summed for each working area and presented in the quarterly report to the EA against the monthly average 12 month rolling permit limit.

The generators included in the reporting will then be validated against the live generator inventory to ensure all generators are captured within the reporting described in Section 5.2.

6 ROLES AND RESPONSIBILITIES

The key roles and responsibilities pertinent to this document are outlined below, these are indicative roles that can be updated to reflect changes within the SZC Company:

- SZC Site Environmental Oversight Manager - will be under the direct employment of SZC and will implement the SZC EMS, including the provision of relevant training. They will also coordinate between client, contractors and external stakeholders as appropriate as well as undertake investigations in relation to exceedances of parameters described in this document.
- Site Operations – Will lead on generator(s) deployment, maintenance, and monitoring. This responsibility may be subcontracted.
- 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. The SZC Contractor will produce a CEMP which will set out the roles and responsibilities of those on Site.

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APPENDIX F1 – AIR EMISSIONS MONITORING PROGRAM

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Appendix F1 - Air Quality Monitoring
Programme

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APPENDIX F1 - AIR QUALITY MONITORING PROGRAMME

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APPENDIX F1 - AIR QUALITY MONITORING PROGRAMME

1 INTRODUCTION

1.1 Purpose

The Air Quality monitoring programme proposed in this document looks to fulfil the following aims for the construction phase at Sizewell C (SZC):

- Monitor the impact of construction combustion sources, both generators and Non-Road Mobile Machinery (NRMM) upon local air quality and ecological receptors.
- Use the information to inform any mitigation measures, if required.
- Monitor the effectiveness of any mitigation measures, if implemented.

The monitoring suggested will consider the following metrics:

1. Ambient Nitrogen Dioxide (NO₂) concentrations using diffusion tubes.
2. Ambient Nitrogen Dioxide (NO_x) concentrations using diffusion tubes.
3. Ambient Sulphur Dioxide (SO₂) concentrations using diffusion tubes.
4. Ambient Particulate Matter concentrations using automatic monitoring (PM₁₀, PM_{2.5} as a minimum)

1.2 Background

During the construction phase at the SZC site, there is potential for pollutants to be emitted from construction plant operating on the site. This includes both diesel and hybrid generators which will power construction plant, lighting, and welfare units as well as operation of Non-Road Mobile Machinery (NRMM). The emissions of pollutant emitted from the plant are emissions from combustion, including (but not limited to) NO₂, NO_x, particulate matter and SO₂. These pollutants also have stringent statutory limits to assess against, hence why these pollutants have been monitored.

The proposed monitoring locations have been distributed across the SZC site, and take into consideration the location, at the time of this monitoring programme, of proposed construction works, and any areas where ancillary activities, generator use and/ or vehicle movements could potentially adversely impact upon receptors, including ecological receptors, as illustrated in Figure 1.

1.3 Criteria relevant to the monitoring programme

The monitoring programme will be for NO₂, NO_x, PM and SO₂. The applicable air quality standards (AQS) associated with each pollutant and their relevant averaging periods are provided in Table 1.1 below.

Table 1.1: Air Quality Standards (AQS) relevant to the SZC

Pollutant	AQS	Averaging period	Value(µg/m3)
Human receptors			
Nitrogen Dioxide (NO ₂)	AQS	Annual Mean	40
	AQS	1-hour mean, not more than 18 exceedances a year (equivalent of 99.79 Percentile)	200
PM ₁₀	AQS	Annual Mean	40
	AQS	24-hour mean, not more than 35 exceedances per year (equivalent to 90.41 percentile)	50
PM _{2.5}	AQS	Annual Mean	20

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Pollutant	AQS	Averaging period	Value(µg/m ³)
Sulphur dioxide (SO ₂)	AQS	1-hour mean not to be exceeded more than 24 times a year (equivalent to 99.73 percentile)	350
	AQS	24-hour mean, not to be exceeded more than 3 times a year (equivalent to 99.18 percentile)	125
	AQS	15-min mean, not to be exceeded more than 35 times a year (equivalent to 99.9 percentile)	266
Ecological receptors			
Oxides of Nitrogen (NO _x)	AQS	Annual Mean	30
	EAL	Daily Mean	75
Sulphur Dioxide (SO ₂)	AQS	Annual Mean	20

1.4 Definitions

Term / Abbreviation	Definition
ACA	Ancillary Construction area
Air quality standard (AQS)	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub-groups (see also air quality objective).
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
Dust	Dust comprises particles typically in the size range 1-75 micrometres (µm) in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials.
EAL	Environmental Assessment Levels
EDRMS	Electronic Document and Records Management System
IAQM	Institute of Air Quality Management
MCA	Main Construction Area
MCERTS	MCERTS (Monitoring emissions to air, land and water) is the Environment Agency's Monitoring Certification Scheme for environmental permit holders. The documents on this page provide a framework for your business to meet the Environment Agency's quality requirements for emissions monitoring.
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxide
PM	Particulate matter
SO ₂	Sulphur dioxide
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SZC	Sizewell C
TSP	Total Suspended Particulates

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1.5 References

Ref	Title	Location	Document No.
1	Defra (2023). Local Air Quality Management Technical Guidance (LAQM.TG22)	UK Regions (exc. London) Technical Guidance LAQM (defra.gov.uk) LAQM.TG22	
2	IAQM (2018). Guidance on Monitoring in the Vicinity of Demolition and Construction Site	guidance_monitoring_dust_2018.pdf (iaqm.co.uk)	

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APPENDIX F1 - AIR QUALITY MONITORING PROGRAMME

2 MONITORING PROGRAMME

2.1 Overview

Air quality monitoring will be undertaken at 10 locations around the site and will comprise of a combination of passive diffusion tube (NO₂, NO_x and SO₂) and continuous particulate monitoring (PM₁₀, PM_{2.5} as a minimum).

Table 2.1 sets out the proposed arrangement of species to be targeted at each location. The table also shows the locations shared with the baseline monitoring survey undertaken to discharge the DCO requirements. The monitoring can be summarised as:

- Nitrogen dioxide (NO₂) diffusion tube monitoring at all 10 locations,
- Nitrogen oxide (NO_x) monitoring at 4 locations,
- Continuous particulate (PM₁₀ and PM_{2.5}) monitoring at two locations,
- Sulphur dioxide (SO₂) diffusion tube monitoring at 5 locations, and
- In addition to this, two locations are proposed as tentative for additional particulate matter monitoring on the Ancillary Construction area (ACA) close to residential receptors.

Table 2.1: Proposed monitoring programme

Site ID	PM Monitor	NO2 diffusion tube	NOx Diffusion tube	SO2 diffusion tube	Baseline Construction Survey location
CCM 1	Y	Y	Y	Y	
CCM 2		Y	Y	Y	
CCM 3	Y	Y	Y	Y	SZC_C4
CCM 4		Y	Y	Y	SZC_C5
CCM 5		Y			
CCM 6		Y			
CCM 7	T*	Y			SZC_D12
CCM 8	T*	Y			SZC_D13
CCM 9		Y		Y	
CCM 10		Y			SZC_D11

T* - PM monitor could be put at either location CCM 7 or CCM 8

2.2 Location

The locations shown in Figure 1 are typical of the area to be monitored and not definitive locations. The monitoring objective for each location are summarized below.

Locations 1 and 3 will require the full suite of NO₂, NO_x, SO₂ and PM monitoring due to their proximity to the Main Construction Area (MCA) and the sensitive ecological receptors.

- Location CCM 1 to CCM 3 – representative of the area between the MCA and ecological habitats
 - CCM 1 and 2 between the MCA and Sizewell Marshes Site of Special Scientific Interest (SSSI)
 - CCM 3 between the MCA and Minsmere-Walberswick Special Protection Area (SPA)

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- Location CCM 4 – representative of the area closest to the haul roads and work area to the Minsmere-Walberswick Heaths and Marshes SSSI.
- Location CCM 5 – representative of the western limit of the Sizewell Marshes SSSI and haul route between ACA and main works areas. Potential to combine with proposed construction monitoring point 8.
- Location CCM 6 – representative of the northern corner of ACA due to presence of generators on ACA and residential receptors.
- Locations CCM 7 and CCM 8 – representative of the westerly and southerly points respectively of ACA closest to residential receptors in Leiston.
- Locations CCM 9 – representative of the access road to Sizewell A and B adjacent to Leiston-Aldeburgh SSSI and Sandling SPA.
- Location CCM 10 – representative of exposure of Crown Lodge to activities in the ACA.

2.3 Monitoring methodology – diffusion tubes

Monitoring locations, the siting of the tubes and tube changeovers will be as set out in Chapter 7: 2 – Air Quality Monitoring, Local Air Quality Management Technical Guidance 2022 (LAQM (TG22))¹.

Palmer type diffusion tubes will be required in order to carry out passive monitoring for NO₂, NO_x and SO₂. These diffusion tubes are widely used throughout the UK as a simple method to monitor pollutant concentrations. The exposure periods would typically be between 4 to 5 weeks in duration (i.e., for an annual mean monitoring survey 12 monitoring periods each between 4 to 5 weeks in duration are required). Each site shall use triplicate diffusion tubes.

Once the samplers are changed, they would be sent for analysis at a UKAS accredited laboratory. The diffusion tube sampling periods can be planned to align with UK National Diffusion Tube Calendar in the interest of alignment with wider diffusion tube exposure periods across the UK.

Results will be reported in the following months report, showing the individual tube results, the average and the period mean to date.

2.4 Monitoring methodology – particulate matter

Continuous monitoring of particulate matter will be required at up to four locations around the SZC site, as set out in Table 2.1. The particulate monitoring devices used will be required to demonstrate the following criteria:

- As a minimum monitoring equipment should have MCERTS certification
- Capable of simultaneous real-time measurements of PM₁₀, PM_{2.5}, and TSP.
- Ability to remotely configure, diagnose, and access data in real-time via any wireless device.
- Send automatic SMS and email alerts.
- Indicative devices ideally will have capabilities to run off a solar panel, not requiring mains power.

Trigger levels will be set for PM₁₀ only and will be set to 190µg/m³ measured as a 1-hour mean, as per IAQM Monitoring in the Vicinity of Demolition and Construction Sites guidance². Breach of the trigger levels should be recorded and reported to the relevant authority in line with the conditions of consent and bring in action control measures such as damping down the site, checking water suppression is in place and operational at sensitive locations.

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2.5 Reporting criteria

Weekly screening of data will be undertaken, with summary emails providing an update on data capture and comments around instrument status or actions required issued internally. In addition, a brief monthly report will be provided to summarise recorded concentrations of PM10/2.5, NO2, NOx and SO2 and reasons for exceedances of the pre-agreed thresholds on site. The following measured metrics should be reported and are shown as an example in Appendix A:

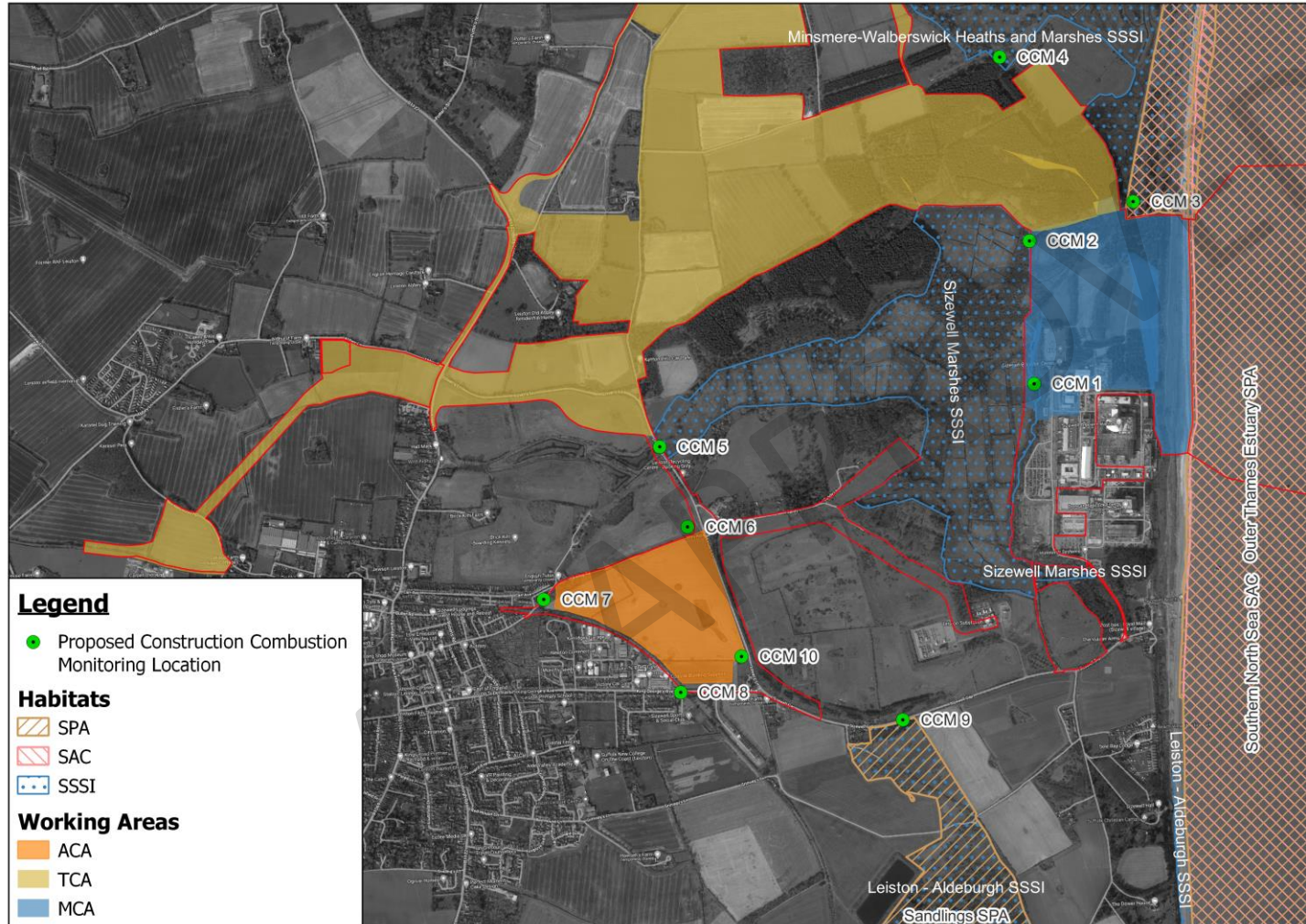
- NO2, NOx and SO2 diffusion tubes – triplicate concentrations, monthly average and period mean for each site.
- PM – Sampling durations (hrs), data capture (%), average, daily mean and maximum PM10/2.5 concentrations, date and time of maximum concentration, list of exceedances of the 190µg/m3 limit values, dust profile for the month and wind rose for the site, any non-compliance, reported incidence and reported equipment failures.

2.6 Equipment redundancy and failure response

A full set of PM monitoring equipment is to be kept on-site ready for redundancy and swap-out with a maximum 72-hour response call-out to equipment failure.

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Figure 1: Monitoring locations



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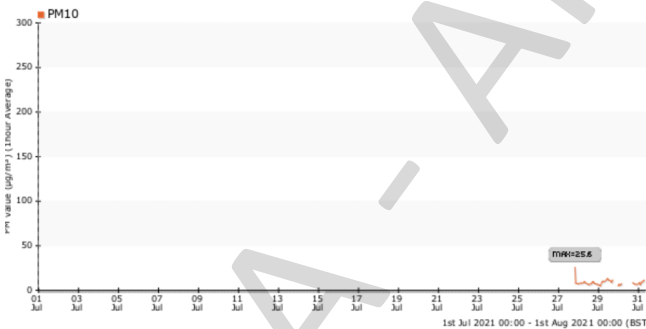
APPENDIX A AIR QUALITY SAMPLING REPORT PROFORMA EXAMPLE

Sampling Location	CCM		
Session Duration	633 Hrs (94.2%)		
Sampling Location	Located on the fence line to the north east of the site.		
Sampling Date	28/07/2021 to 25/08/2021		
Average PM ₁₀ Concentration (µg/m ³)	23.96		
Max PM ₁₀ Concentration (µg/m ³)	For Raw 15-minute Reading Period: 46.91 For 1-hour Averaging Period: 43.94		
Time and date of max PM ₁₀ Concentration	For Raw Reading: 11:05 – 16/08/2021 For 1-Hour Period: 11:00 – 16/08/2021		
Exceedances of 190 µg/m ³ *List continued on final page if required	Concentration (µg/m ³)	Time	Date
Figures	Figure 1 - Dust Profile Figure 2 – Wind Rose		
Comments (any non-compliance, reported incidence and reported equipment failures)	No dust threshold alerts of or over 190 µg/m ³ were recorded over 1 hour during this period.		

Figure 1 Dust Profile (PM₁₀), 01/07/2021 to 31/07/20

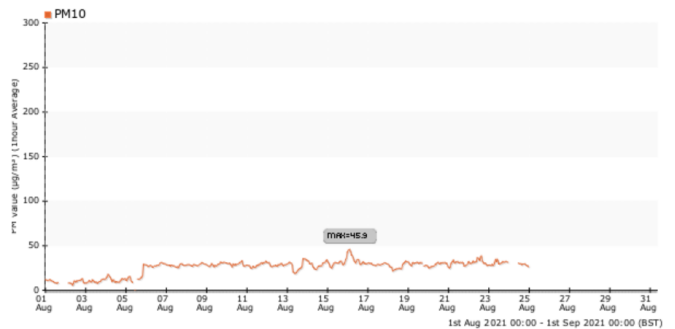
Month of July 2021

2021-07-01
Particle Counts



Month of August 2021

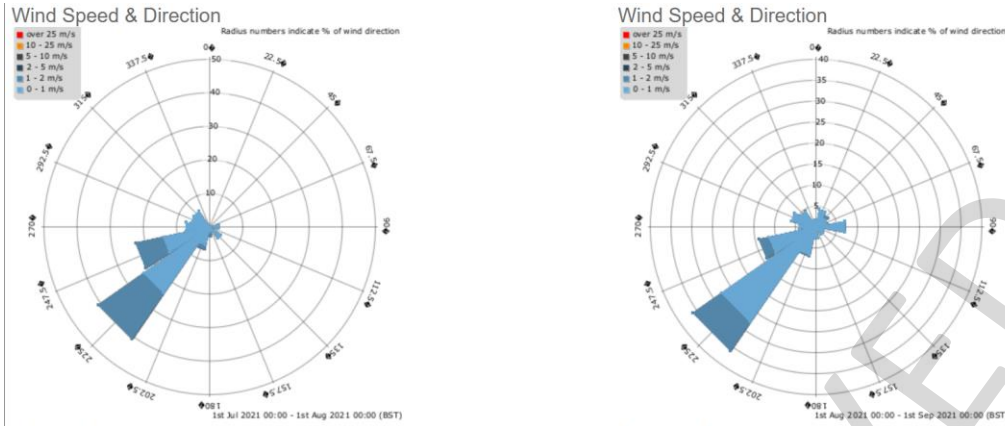
2021-08-01
Particle Counts



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Figure 2 Wind Rose, 01/07/2021 to 31/07/2021



NO ₂ Sample	NO ₂ -1	NO ₂ -2	NO ₂ -3	NO ₂ -4	NO ₂ -5	NO ₂ -6	NO ₂ -7	NO ₂ -8	NO ₂ -9
Sampling Location									
Sampling Dates									
Sample Duration (Hrs)									
Average NO ₂ concentration (µg/m ³)									
Comments									

NO _x Sample	NO _x -1	NO _x -2	NO _x -3	NO _x -4	NO _x -5	NO _x -6	NO _x -7	NO _x -8	NO _x -9
Sampling Location									
Sampling Dates									
Sample Duration (Hrs)									
Average NO ₂ concentration (µg/m ³)									
Comments									

SO ₂ Sample	SO ₂ -1	SO ₂ -2	SO ₂ -3	SO ₂ -4	SO ₂ -5	SO ₂ -6	SO ₂ -7	SO ₂ -8	SO ₂ -9
Sampling Location									
Sampling Dates									
Sample Duration (Hrs)									
Average NO ₂ concentration (µg/m ³)									
Comments									

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