

101277765  
Revision 01  
EA-SZC-21797N



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**File Ref:** 101277765  
**Unique Number:** EA-SZC-21797N  
**Your Ref:** EPR/GP/3226SQ/A001

Thursday, 23<sup>rd</sup> May 2024

**For the attention of** [REDACTED], **Principal Permitting Officer**

Dear [REDACTED],

### FOR INFORMATION: NOISE AND AIR EMISSIONS RISK ASSESSMENT ADDITIONAL INFORMATION

Thank you for your engagement with Sizewell C (SZC) following the submission of our Industrial Emission Directive (IED) application on 12<sup>th</sup> April 2024. Please see below our responses to the questions asked in the request for information (RFI) letter from the Environment Agency (EA) dated 10<sup>th</sup> May 2024.

#### Noise- Screening Assessment

- 1) **Where no BS 4142 assessment is being carried out, clearly state your screening methodology showing that sound emissions from the proposed generators are low risk. Include detailed supporting evidence such as detailed sound propagation calculations used to arrive at your conclusions.**

**SZC Response:** Please refer to the enclosure entitled 'EPR/GP3226SQ/A001 Request for Information: Noise – BS 4142:2014 + A1:2019 Assessment'.

- 2) **Provide raw background sound level measurements (including time, date, LA90, LAeq, Lmax at each survey location) in an Excel spreadsheet format and any accompanying computer modelling files or calculation spreadsheets.**

**Reason:** *The submitted report assesses the overall sound emissions from the construction phase of the Sizewell C Nuclear Plant according to BS 5228. The Environment Agency is only permitting the sound emissions from the power generators; therefore, a separate assessment is required to evaluate the sound emissions from these power generators. The Environment Agency guidance clearly states, "you must use 'BS 4142: Methods for rating and assessing industrial and commercial sound' to quantify the level of environmental noise impact from industrial processes". In addition to this the BS 4142 standard states within Section 1.1 b), detailing the scope of the standard, that "sound from fixed installations which comprise the mechanical and electrical plant equipment" should be assessed using the BS 4142 method.*

**Where no BS 4142 assessment is being carried out, you must undertake screening to show that sound emissions from the proposed generators are low risk. Where the possibility of impacts, due to sound emissions from the proposed generators, cannot be ruled out at any residential receptor, you must carry**

101277765  
Revision 01  
EA-SZC-21797N



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*out a detailed BS 4142 assessment at these residential receptors. This would be required during determination of the permit application. The Environment Agency will scrutinise the screening methodology used. If we disagree with the screening outcomes in a location, then we will also require a full BS 4142 assessment at that location during determination.*

**SZC Response:** Please refer to the enclosure entitled 'EPR/GP3226SQ/A001 Request for Information: Noise – BS 4142:2014 + A1:2019 Assessment'. Currently, the BS 4142 assessment has included data publicly available from the Development Consent Order (DCO) application. This does not include the raw data obtained to determine the background levels, as this data is unavailable in a shareable format requested. However, an updated round of baseline monitoring has recently been conducted to feed into the Code of Construction Practice (CoCP) and/ Noise Monitoring and Management Plan (NMMP) control documents for the Main Development Site (MDS), including the Ancillary Construction Area (ACA), with the results of this monitoring still being processed. Once the data is available, this can be provided to the EA and, where necessary, the BS 4142 assessment will be updated.

### Air Emissions Risk Assessment

- 3) We have noted the following errors in the Peak Emissions Inventory spreadsheet, please check and correct the following:
- a) 'Inventory' tab, cells Z60:Z67. Equation is pulling PM10 values into the column for SO2 for the Associated Development generators.

**SZC Response:** We have checked the Peak Emissions Inventory Spreadsheet and can confirm there was an error. It should be noted that Scenario 2c is not the most likely nor the worst-case scenario identified within the air quality model. We have corrected the data and Table 1 below shows, for each generator, the modelled SO<sub>2</sub> emission rate compared to the correct SO<sub>2</sub> emission rate, plus the difference between the two. Comparison of the two data sets demonstrates that there is a marginal difference in the modelled and correct emission rates. The Associated Development (AD) generators only contribute approximately 4% of the total SO<sub>2</sub> emissions. Therefore, this has no material impact on the modelled process contribution or conclusions of the assessment.

**Table 1 – Modelled vs correct SO<sub>2</sub> emission rates used in the model (Associated Development generators)**

Generator ID	Modelled SO <sub>2</sub> emission rate (g/s)	Correct SO <sub>2</sub> emission rate (g/s)	Difference (g/s)
AD6_4	$6.22 \times 10^{-4}$	$5.45 \times 10^{-4}$	$-7.68 \times 10^{-5}$
AD6_3	$6.22 \times 10^{-4}$	$5.45 \times 10^{-4}$	$-7.68 \times 10^{-5}$
AD6_2	$6.22 \times 10^{-4}$	$4.09 \times 10^{-2}$	$4.03 \times 10^{-2}$
AD6_1	$1.59 \times 10^{-3}$	$1.82 \times 10^{-3}$	$2.25 \times 10^{-4}$
AD4_6	$5.29 \times 10^{-4}$	$4.55 \times 10^{-4}$	$-7.43 \times 10^{-5}$
AD4_5	$5.29 \times 10^{-4}$	$4.09 \times 10^{-2}$	$4.04 \times 10^{-2}$
AD4_4	$1.59 \times 10^{-3}$	$1.14 \times 10^{-1}$	$1.12 \times 10^{-1}$
AD5_1	$7.97 \times 10^{-5}$	$4.55 \times 10^{-4}$	$3.75 \times 10^{-4}$

- b) 'Lighting and Crane' tab. The VLOOKUP equation is pulling in incorrect values as the equation is not completed to pull in 'exact match', so is pulling in 'approximate match'. Column V is therefore not pulling in the correct values for SO<sub>2</sub>.

**SZC Response:** We have reviewed the Lighting and Cranes values. Please see Table 2 below which shows the modelled SO<sub>2</sub> emission rates compared to the correct SO<sub>2</sub> emission rates, plus the difference between the two values. The data shows that there is no change to the emissions for 10 and 400 kWth, but there is a slight difference for the 640 and 1000 kWth. Lighting and crane generators are included in the model for baseline

101277765  
Revision 01  
EA-SZC-21797N



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conditions and not included for the permit application. Total emissions of SO<sub>2</sub> for Scenario 2a (most likely scenario) were underestimated by less than 4%. Taking into account the underestimate of emissions from the AD generators, in Scenario 2c (-25% headroom) emissions were underestimated by less than 9%. Given the headroom applied, these changes would not materially affect the conclusion of the assessment.

**Table 2 – Modelled vs correct SO<sub>2</sub> emission rates used in the model (Lighting and Crane)**

Rated Power (kWth)	Modelled SO <sub>2</sub> emission rate (g/s)	Correct SO <sub>2</sub> emission rate (g/s)	Difference (g/s)
640.00	0.0250	0.0291	0.0041
1000.00	0.0182	0.0455	0.0273
10.00	0.0005	0.0005	0.0000
400.00	0.0182	0.0182	0.0000

**4) Provide a full justification as to why potential human health receptors at residential property locations in west Leiston were not included within your modelling and assessment.**

**SZC Response:** The human health receptors in this assessment align with those included in the DCO application and the human receptors identified in the noise and vibration monitoring plan process. Prior to the permit application being submitted, pre-application advice meetings were held between Sizewell C and the Environment Agency, including its Air Quality Modelling and Assessment Unit (AQMAU). A Method Statement was submitted to AQMAU in December 2023 with details of the proposed air emissions risk assessment to support the environmental permit application, including the location of receptors to be included in the model. This Method Statement was reviewed by AQMAU and feedback was received with the subsequent modelling undertaken accordingly.

Based on the above, the receptors included in the air emissions risk assessment are considered to be appropriate and consistent with both the DCO air quality assessment and the AQMAU reviewed Method Statement. Review of the results from the air emissions risk assessment modelling demonstrates that the impacts in that area (West Leiston) are predicted to be low. Therefore, the inclusion of specific receptors in this location within the model is not considered to be necessary.

**5) Provide clarification on the following points:**

**a) Confirmation that the 'Haul Road' tab is not used within the peak inventory calculations.**

**SZC Response:** The 'Haul Road' tab referred to is not used within the peak inventory calculations. The spreadsheet tab shows the output from the Emissions Factor Toolkit (EFT) and Calculator for Road Emissions of Ammonia Model) CREAM used to calculate the emission rates.

**b) Explanation of temperature and diameter changes in the 'Model inputs ranges' tab.**

**SZC Response:** In lieu of site-specific datasheets being available for the generators, conservative values were used based on the MWth expected for each activity. Assumptions were made in the emissions inventory spreadsheet based on processes at similar facilities (including Hinkley Point C). The stack diameters were set to generate a conservative velocity and volume flow rate to ensure a conservative pollutant emissions rate. Similarly, the temperature ranges used are within the anticipated temperature range for diesel generators and their size.

**c) Provide justification for the 50% 'headroom' reduction in emission rates for static generators in Scenario 2e.**

101277765  
Revision 01  
EA-SZC-21797N



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**SZC Response:** There is a 50% 'headroom' reduction in emission rates for static generators in Scenario 2e. This is due to the hybrid generators running on diesel 50% of the time and battery provision covering the remaining 50% (when there would be no emissions). Therefore, this matches the proposed operational profile for the generators (in this scenario).

- 6) **Re-run your modelling to account for any changes resulting from points 3-5 above. Alternatively, if appropriate, you may provide a full justification to explain why you consider that re-modelling is not required as a result of the changes made.**

**SZC Response:** Re-modelling is not considered to be required as:

- The changes to the emissions data on the 'Inventory' tab and 'Lighting and Cranes' tab would not materially affect the air emissions risk assessment modelling results or conclusion of the assessment as explained in responses 3a and 3b above.
- Appropriate assumptions were used for the 'Model input ranges' tab of the emissions inventory spreadsheet. As these assumptions were conservative and based on processes at similar facilities (Hinkley Point C, remodelling is not required).
- We do not consider it necessary, nor beneficial, to include additional human health receptors in West Leiston, as the modelled grid outputs show that the predicted impacts in this area are low and not of concern.
- The air emissions risk assessment modelling (including receptor locations) was undertaken in accordance with a Method Statement that had been reviewed by the EA AQMAU in advance of the modelling being undertaken.

- 7) **Provide a copy of the manufacturer's specification data sheets for the generators used in your calculations. Reason: so we can see where the 'hard pastes' of information have come from and undertake the necessary checks.**

**SZC Response:** At the time when the air quality modelling was undertaken, detailed information including manufacturers' specification data sheets for the package substation static modelled Generators was not available. Procurement for these Generators is underway and will, when concluded, result in specific Generator selection and a final design being confirmed. Within the modelling the expected power demand was available and other assumptions (for example stack heights) were made in the emissions inventory spreadsheet based on basis of design information, professional experience, and processes at similar facilities (including Hinkley Point C). A review of all the modelling assumptions will be undertaken once the Generator selection has been completed and the preferred suppliers have been identified to confirm the suitability of the assumed emission data used in the model.

I trust this document provides the Environment Agency with sufficient response to the RFI and will enable continued processing of the IED permit application. Should any further details be required, I would welcome the opportunity to discuss further and supply the information required.

101277765  
Revision 01  
EA-SZC-21797N



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Yours sincerely,

DocuSigned by:  
[Redacted]  
03A24C4523754F5...  
[Redacted]  
Environment Manager  
Construction Permits and Consents  
Sizewell C Limited

SZC Ltd Review	Role	Name	Signature
Peer Check	Regulator and Licensing Officer	[Redacted]	DocuSigned by: [Redacted]
Independent Verification	Environment Consents and Permits Delivery Lead	[Redacted]	ACC80E37B531408 ... DocuSigned by: [Redacted] 182B91E23B09424
Approval	Head of Environmental Consenting and Compliance	[Redacted]	DocuSigned by: [Redacted] D46CC94AEEA440...

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101277765  
Revision 01  
EA-SZC-21797N



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### Enclosures

	Document Title	EDRMS Reference Number	Version Number	Protective marking	Transmitted via
1.	EPR/GP3226SQ/A001 Request for Information: Noise – BS 4142:2014 + A1:2019 Assessment	101277766	001	NOT PROTECTIVELY MARKED	Teamcenter
2.	Generator BS 4142 Assessment Model Files	101283435	001	NOT PROTECTIVELY MARKED	Teamcenter