

Notice of request for more information

The Environmental Permitting (England & Wales) Regulations 2016

NNB Generation Company (SZC) Ltd (Companies House reference: [09284825](#))

90 Whitfield Street
London
England
W1T 4EZ

Application reference: EPR/CB3997AD/A001 (Sizewell C water discharge activities permit application)

The Environment Agency, in exercise of its powers under paragraph 4 of Part 1 of Schedule 5 of the above Regulations, requires you to provide the information detailed in the attached schedule. The information is required in order to determine your application for a permit duly made on 26/06/2020.

Send the information to the e-mail addresses (and upload it to the EA Sharefile site) specified below by 12/04/2021. If we do not receive this information by the date specified then we may treat your application as having been withdrawn or it may be refused. If this happens you may lose your application fee.

E-mail addresses (please note there is a 10MB file size limit for e-mails):

- 1.) [REDACTED]
- 2.) PSC-waterquality@environment-agency.gov.uk

EA Sharefile site for uploading application and supporting information documents for application EPR/CD3997AD:

- [https://ea.sharefile.com/\[REDACTED\]](https://ea.sharefile.com/[REDACTED])
This is a specific folder titled 'Sch 5 [No.3] response', and has been created for you to upload the additional information response documents.

Postal address (not currently in use due to COVID-19 situation):
Environment Agency, National Permitting Service (Water Quality), Richard Fairclough House,
Knutsford Road, Warrington, Cheshire, WA4 1HT

Name	Date
[REDACTED]	15 March 2021

Authorised on behalf of the Environment Agency

Notes

These notes do not form part of this notice .

Please note that we charge £1,200 where we have to send a third or subsequent information notice in relation to the same issue. We consider this to be the first notice on the issues covered in this notice.

The notes that appear after information requests in the attached schedule do not form part of the notice. The notes are intended to assist you in providing a full response to the information requests.

Schedule

Information request 1

Please provide an interface area estimated for SZC based on the same, or equivalent approach to that used for SZB, for example using the Telemac model or ANSYS models. Or alternatively, for the SZB analysis to be repeated but with Δy drawn from the point at which the inward velocity exceeds 0.3 m s⁻¹.

Background to information request 1

The following documents were provided as part of the response to first Schedule 5 notice [No.1]:

- Predicted performance of the SZC LVSE intake heads compared with the SZB intakes, BEEMS Scientific Position Paper SPP099, v4
- SZ intake velocities awac 6 July 2020.xlsx
- SZB intake velocities 6 July 2020.xlsx
- LVSE Supplementary calculations 5May2020.xlsx

Following our review of the above documents, we require the additional information requested above to be provided based on the findings of our review.

This information is required to allow us to better understand the different methods used to calculate interface area for SZB and SZC, and to improve our confidence in the value of the ratio of the interface areas. This will assist us in our assessment of the load of polluting matter from the fish recovery and return (FRR) system, and its impact on the quality of the receiving environment.

Different methods are used for SZB and SZC to calculate interface area. These are, for non-slack water conditions:

- SZB: area estimate based on abstraction width taken from Telemac model.
- SZC: the physical intake structure projected into the direction of tidal flow.

For SZC CFD modelling has been used to show that current speeds, induced in the wider current stream, towards the intakes are small at distances close to the intake. Based on the calculation provided in 'SZ intake velocities awac 6 July 2020.xlsx', it appears the effect of these induced currents is ignored, and only fish that would physically be directly impinged on the intake by the main tidal current flow are considered.

For SZB, from Figure 7 of the report Δy appears to be the maximum width defined by water particles that are subsequently abstracted. At the point at which Δy is drawn it is unclear what the 'inward velocity' i.e. that of the particle towards the intake is. It is therefore unclear if the approach taken for SZB is equivalent to that taken for SZC.

Information request 2

To allow us to progress our Sizewell B (SZB) impingement audit, please provide a list of those PISCES 2009 to 2013 surveys effected by overflowed bulk samples, and where estimates have been made using data from hourly samples alone.

Background to information request 2

In 'Sizewell Comprehensive Impingement Monitoring Programme 2009 - 2017' ver 3, section 2 Sampling 2009 – 2013, it states that on occasions "Overflowed bulk samples had to be discarded", and that "High biomass periods are accounted for by hourly samples".

We require a list of those PISCES 2009 to 2013 surveys effected by overflowed bulk samples, and where estimates have been made using data from hourly samples alone to allow us to conduct our audit.

This would be equivalent to the information provided on tab 'raised no_wt by visit' of 'TR339 Data compilation workbook Cefas 2014-2017.xlsx', where use of yellow highlighting in row 3 'sampling visit' indicates 'where the bulk sample was Invalid (overflowing) or was not undertaken (was almost certain to overflow)', but would be for the PISCES surveys rather than the Cefas surveys.

Information requests 3 (a) and 3 (b)

It is unclear from the information provided to date how the calculation to raise SZB impingement survey data to full capacity has been made. Therefore, please provide the following additional information and clarification:

- (a) Please clarify and confirm in writing how the method/calculation to raise SZB impingement survey data to full capacity has been made.
- (b) Assuming that the method/calculation is based on the number of operational pumps, please confirm in writing the number of pumps working for each of the Cefas 2014-2017 surveys.

Background to information requests 3 (a) and (b)

Our uncertainty on the method/calculation applied follows from the following points 1) to 6) below:

- 1) In "Sizewell C – Impingement predictions based upon specific cooling water system design, TR406, ver 6", section 5.2 it states:

"Each sample represented the estimated number and weight of fish that would have been impinged during the 24-h period, if the station was working at full capacity (i.e. 4 pumps in operation, which is not always the case during the year)."

This suggests that in raising sample results to full capacity the number of pumps is used but not the number of screens.

- 2) "TR339 Sizewell Comprehensive Impingement Monitoring Programme 2009 - 2017, v 3",

Section 2 Sampling 2009 – 2013, it states "The station does not always run at full capacity and can have two or three of the four pumps and screens functioning. Using the appropriate multiplication factor, these data were adjusted to represent a 24-h sample at full (4-screen) capacity. Stakeholders have asked whether reduced pumping capacity could lead to underestimates of impingement. However, impingement rates are scaled to account for full capacity (assuming linear relationships between pumping capacity and impingement).

In comparison executive summary para 2 states, "Each sample was raised to the full pumping capacity of the station (4 pumps)"

Here it is not clear if in raising sample results to full capacity the number of pumps and / or screens is used.

- 3) Pisces Raw files - e.g. "Sizewell_11.02.25 NS - QAdJRS.xls", calculations show survey number are raised on value in tab Details cell \$B\$14. Cell \$B\$14 is the 'No. screens', while cell \$B\$15 is the 'No. pumps'. Cell \$B\$15 does not appear to be used in any formula in workbook.

This suggests that in raising sample results to full capacity the number of screens is used but not the number of pumps.

- 4) "TR339 Sizewell Comprehensive Impingement Monitoring Programme 2009 - 2017, v 3", Section 3 Sampling 2014 – 2017, 3.6.3 raising to full pumping capacity, states "The SZB cooling water system uses 4 drum screens and 4 pumps, but these are not always operational. The number of pumps in operation was noted for each sample taken. All catch components were raised to full pumping capacity by multiplying by (4/number pumps in operation)."

This suggests that in raising sample results to full capacity the number of pumps is used but not the number of screens.

- 5) Cefas Raw data 'TR339 Data compilation workbook Cefas 2014-2017.xlsx'. In tab 'raised no_wt by screens' formula use '4/raised no_wt by time!O\$6', row 6 'raised no_wt by time' is 'fldGearAdditional2'. In e-mail from Emma Wells EDF on 19 November 2020 at 18:10 titled 'Fw: Queries regarding Schedule 5 notice [No.1] response: SZC op WDA permit app (EPR/CB3997AD/A001) part 1' were told 'fldGearAdditional2' is 'Number of operational drum screens'.

This suggests that in raising sample results to full capacity the number of screens is used but not the number of pumps.

- 6) Examination of data in the 128 Pisces Raw files shows the number of pumps and number of screens in operation for a given survey are not always the same therefore these two figures cannot be used interchangeably. E.g. 'CIMP2_2010-2011\Sizewell_10.12.15 QAd.xls' number of screens is reported as 4, while number of pumps is reported as 3.

Information requests 4 (a) to 4 (i)

(a) Please provide a copy of the latest version of technical report:

- **TR130:** *Sizewell Water Quality Monitoring Data Report 1st Report: February 2010 to April 2010.* Cefas, Lowestoft.

This technical report is referenced within Appendix A (section 8.1) reference [59]: BEEMS Technical Report TR189 Sizewell Marine Water Quality Monitoring Final Summary Report. Cefas Lowestoft.

(b) Please provide a copy of the latest version of technical report:

- **TR145:** *Sizewell - Laboratory studies of the decay of Hydrazine measured in sea water samples.* Cefas, Lowestoft.

This technical report is referenced within the following sections of the SZC WDA application:

- Appendix A (section 8.1) reference [89], as supplied within Appendix E: *BEEMS Technical Report TR306 Ed5. SZC Marine Water and Sediment Quality Synthesis MSR2/2.* Cefas, Lowestoft, UK.
- Appendix A (section 8.1) reference [92], as supplied within Appendix E: *BEEMS Technical Report TR387. Investigation of hydrazine toxicity to marine species.* Cefas, Lowestoft, UK.
- Appendix B (TR193) within sections 11.4 and 13: *Sizewell C Discharges H1 type assessment – supporting data report Edition 5).*
- Appendix D - WFD assessment (as reference 1.33)

(c) Please provide a copy of the latest version of technical report:

- **TR146:** *Hinkley Point: Laboratory studies of the decay of hydrazine measured in seawater samples.* Cefas, Lowestoft.

This technical report is referenced within the following sections of the SZC WDA application:

- Appendix A (section 8.1) reference [59], as supplied within Appendix E: *BEEMS Technical Report TR189 Sizewell Marine Water Quality Monitoring Final Summary Report.* Cefas Lowestoft.
- Appendix A (section 8.1) reference [89], as supplied within Appendix E: *BEEMS Technical Report TR306 Ed5. SZC Marine Water and Sediment Quality Synthesis MSR2/2.* Cefas, Lowestoft, UK.

(d) Please provide a copy of the latest version of technical report:

- **TR175:** *Initial investigation of hydrazine toxicity to selected marine species.* Cefas, Lowestoft

This technical report is referenced within Appendix A (section 8.1) reference [92], as supplied within Appendix E: *BEEMS Technical Report TR387. Investigation of hydrazine toxicity to marine species.* Cefas. Lowestoft, UK

(e) Please provide a copy of the latest version of technical report:

- **TR352:** *Laboratory studies on the decay of hydrazine in Sizewell Seawater and derivation of modelling terms for Sizewell C.* Cefas, Lowestoft.

This technical report is referenced within the following sections of the SZC WDA application:

- Appendix A (section 8.1) reference [89], as supplied within Appendix E: *BEEMS Technical Report TR306 Ed5. SZC Marine Water and Sediment Quality Synthesis MSR2/2.* Cefas, Lowestoft, UK.
- Appendix A (section 8.1) reference [92], as supplied within Appendix E: *BEEMS Technical Report TR387. Investigation of hydrazine toxicity to marine species.* Cefas. Lowestoft, UK
- Appendix B (TR193) within sections 11.4 and 13: *Sizewell C Discharges H1 type assessment – supporting data report Edition 5)*

(f) Please provide a copy of the latest version of technical report:

- **TR390:** *Laboratory studies on the decay of hydrazine in Hinkley Point seawater and derivation of modelling terms for Hinkley Point C,* Cefas, Lowestoft.

This technical report is referenced within Appendix A (section 8.1) reference [92], as supplied within Appendix E: *BEEMS Technical Report TR387. Investigation of hydrazine toxicity to marine species.* Cefas. Lowestoft, UK.

(g) Please provide a copy of the latest version of technical report:

- **TR397:** *Hydrazine analysis and discharge plume predictions for Sizewell B and Sizewell C,* Cefas, Lowestoft

This technical report is referenced within Appendix A (section 8.1) reference [92], as supplied within Appendix E: *BEEMS Technical Report TR387. Investigation of hydrazine toxicity to marine species.* Cefas. Lowestoft, UK.

(h) Please provide a copy of the latest version of technical report:

- **TR494:** *Hydrazine construction discharge plume modelling. Cefas, Lowestoft.*

This technical report is referenced within the following sections of the WDA application:

- Appendix A (section 8.1) reference [89], as supplied within Appendix E: *BEEMS Technical Report TR306 Ed5. SZC Marine Water and Sediment Quality Synthesis MSR2/2. Cefas, Lowestoft, UK.*
- Appendix B (TR193) as referenced within sections 8.1 and 8.2: *Sizewell C Discharges H1 type assessment – supporting data report Edition 5)*

(i) Please provide a copy of the following report:

- *Taylor C.J.L. 2006. The effects of biological fouling control at coastal and estuarine power stations. Mar. Poll. Bull. 53- 30-48.*

This report is referenced within Appendix A (section 8.1) of the SZC WDA as reference [69].

Information requests 5 (a) and 5 (b)

The following information requests are based on the recently supplied response (dated 17/02/2021) to the Schedule 5 notice [No.2] information request 8 (b) “*Please provide an explanation of how the 98%ile observed temperature was derived from the harmonic analysis performed*”.

Report SPP098 version 1 (dated 24/04/2020) has been provided as part of the Schedule 5 [No.2] response to information request 8(b).

Following our initial review, SPP098 section 2.2.1 “Testing Method 2 at the Sizewell B intake location” refers to and presents results from an Excel spreadsheet model used to simulate the annual seasonal temperature cycle at the Sizewell B intake. We now require the following additional information:

- (a) Although SPP098 version 1 does describe the calculations performed by the spreadsheet, it would aid our understanding if a copy of the spreadsheet were provided to us. Therefore, please provide a copy of the spreadsheet.
- (b) Please provide explanatory notes explaining how Figure 2, Table 1 and Table 2 of SPP098 were derived from the calculations in the spreadsheet (assuming that this relationship cannot be inferred by the reader by examination of the spreadsheet).

END OF DOCUMENT