



Document Reference Number 100876135
Revision 01
EA-SZC-21552N

NOT PROTECTIVELY MARKED

Environment Agency
c/o The Joint Programme Office
New Reactor Programme
4S.2 Redgrave Court
Merton Road Bootle
L20 7HS

File Ref: 100876135
Unique Number: EA-SZC-21552N
Your Ref.: EPR/CB3997AD/A001

26th March 2021

For the attention of [REDACTED], Senior Permitting Officer

Dear [REDACTED],

**FOR INFORMATION: NNB GENERATION COMPANY (SZC) LIMITED APPLICATION FOR WATER DISCHARGE ACTIVITY
OPERATIONAL ENVIRONMENTAL PERMIT FOR SIZEWELL C – ENVIRONMENT AGENCY SCHEDULE 5 NOTICE**

Further to your Schedule 5 Notice requesting further information dated the 15th March 2021 (Application Reference: EPR/CB3997AD/A001) please find below the information requested for the Sizewell C Water Discharge Activity (WDA) Permit Application.

No.	EA Information Request	SZC Response
2	To allow us to progress our 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.	The details of the PISCES surveys requested are presented in document 'SPP111 Sizewell C impingement predictions corrected for Sizewell B raising factors and cooling water flow rates'. A copy of this document has been uploaded to the EA ShareFile (24/03/21).
3a	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: - Please clarify and confirm in writing how the method/calculation to raise SZB impingement survey data to full capacity has been made.	Details on how the method/calculation to raise SZB impingement survey data to full capacity has been made, is presented in document 'SPP111 Sizewell C impingement predictions corrected for Sizewell B raising factors and cooling water flow rates'. A copy of this document has been uploaded to the EA ShareFile (24/03/21).

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3b	<p>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:</p> <ul style="list-style-type: none"> - 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. 	<p>Details on the number of pumps is presented in document 'SPP111 Sizewell C impingement predictions corrected for Sizewell B raising factors and cooling water flow rates'.</p> <p>A copy of this document has been uploaded to the EA ShareFile (24/03/21).</p>
4i	<p>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.</p>	<p>The report requested (Taylor, 2006) is a publicly available document published by Elsevier in the publication 'Marine Pollution Bulletin'. As the publication is copyrighted it is not possible to provide the EA with a copy directly.</p> <p>The document is available online at:</p> <p>https://www.sciencedirect.com/science/article/pii/S0025326X06000117?via%3Dihub.</p>
5a	<p>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:</p> <ul style="list-style-type: none"> - 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. 	<p>The Excel spreadsheet requested is named 'Percentile_test_sheet_.xlsx'.</p> <p>A copy of this document has been uploaded to the EA ShareFile (25/03/21).</p>
5b	<p>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</p>	<p>An explanatory note, explaining how Figure 2, Table 1 and Table 2 of SPP098 were derived from the calculations in the spreadsheet, is presented below.</p>

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<p>cycle at the Sizewell B intake. We now require the following additional information:</p> <ul style="list-style-type: none"> - 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). 	<p><u>Percentile Test Sheet Explanatory Notes</u></p> <p>The spreadsheet was originally developed by Lars Akesson (Environment Agency, 2016).</p> <p>Figure 2 can be found in the tab "Chart 1" in the attached Excel spreadsheet "Percentile_test_sheet.xlsx". All data from the chart is contained within the tab "Sheet 3".</p> <p>The values for Table 1 are found in row 365 and 367, columns L through S. The values for Table 2 are found in row 365 and 367, columns U through AB.</p> <p>Please note that the spreadsheet utilised a random number generator, so every time a cell is updated or clicked on to check the formula, it will subsequently update the entire spreadsheet and produce different numbers for the cells generating Table 1 and 2 and the time series curves in the Figure. Equally pressing F9 will generate new random numbers.</p> <p>In sheet 3, column B is annual time series of the Sizewell B intake temperatures from the Sizewell GETM model. Columns C through J are randomly generated time series of the annual temperature cycle (the scenarios labelled S2-S9 in Figure 1). To then test the difference between calculating the total 98th percentile of the time series versus background 98th percentile plus the mean excess, columns L through S is the sum of the randomly generated time series plus the randomly generated excess temperature in column K. The values of total 98th percentile and 98th percentile + mean excess is calculated at the bottom of the time series in row 365 and 367 (Table 1).</p> <p>Columns U through AB repeat the same process but instead use the excess temperature as calculated by the Sizewell GETM model, in column T. The values of total 98th percentile and 98th percentile + mean excess is calculated at the bottom of the time series in row 365 and 367 (Table 2).</p>
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Should you have any questions or comments we will be happy to provide further information on this as part of our ongoing Level 4 interactions.



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Yours sincerely,



SZC Conventional Environment Lead
NNB Generation Company (SZC) Limited

Copy: RIO, JPO, 

NNB GenCo Review	Name	Signature
Peer Check	Ross Pettigrew	DocuSigned by: <i>Ross Pettigrew</i> FCE24F4AF9FA4FD...
Independent Verification	N/A	
Approval	Peter Bryant	DocuSigned by: <i>Peter Bryant</i> 264697DF8BF748E...

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References

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

Appendix 1

Enclosures for the Sizewell C Water Discharge Activity Permit Application Schedule 5 Information Request

	Document Title	EDRMS Reference Number	Version Number	Protective marking	Transmitted via
1.	SPP111 Sizewell C impingement predictions corrected for Sizewell B raising factors and cooling water flow rates	100875984	001	NOT PROTECTIVELY MARKED	Teamcenter
2.	Percentile_test_sheet_.xlsx	100875988	001	NOT PROTECTIVELY MARKED	Teamcenter