



Habitats regulations assessment report

Environment Agency permits for proposed Sizewell C nuclear power station

July 2022

Version 1

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1. Foreword

NNB Generation Company (SZC) Limited (NNB GenCo) is constructing a new nuclear power station at Sizewell in Suffolk to be known as Sizewell C (SZC).

The construction and operation of SZC requires various permissions from the Environment Agency, the Department for Business, Energy and Industrial Strategy (BEIS), and the Marine Management Organisation (MMO) among others.

Permissions considered within this assessment are operational permits for:

- combustion activities (CA) permit application (reference: EPR/MP3731AC/A001)
- radioactive substances activities (RSA) permit application (reference: EPR/HB3091DJ/A001)
- water discharge activities (WDA) permit application (reference: EPR/CB3997AD/A001)

Other permissions will be required from the Environment Agency for other aspects of the project such as the construction phase. Where enough information is available, these will be considered within the assessment, but if information is not available, these will be assessed separately when the permits are applied for.

The Environment Agency, as a competent authority, is required, under the Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations), to carry out a habitats regulations assessment (HRA) for any permissions it grants that have the potential to impact on European sites.

European sites include Special Areas of Conservation (SACs and candidate SACs), which are designated under the EC Habitats Directive for important high quality habitat sites. It also includes Special Protection Areas (SPAs and potential SPAs), which are designated under the EC Birds Directive and are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species.

Ramsar sites are wetlands of international importance designated under the Ramsar Convention. Government policy gives Ramsar sites broad equivalence to those designated under the Birds and Habitats Directives. Therefore, Ramsar sites will be included within the assessment.

Collectively, these types of sites are known as European sites.

The purpose of this assessment is to ascertain, in view of the conservation objectives of the European sites, whether it can be concluded that the permits will not adversely affect the integrity of the European sites in question, either alone or in combination with other relevant permissions, plans, or projects (PPP).

What follows in this document is a record of the HRA required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (SI No. 2017/1012) we have carried out.

2. Executive summary

We have carried out a habitats regulations assessment (HRA) for the operational permits.

The habitats regulations assessment report (HRAR) assesses the potential impact of our permissions on achieving the conservation objectives for the European sites, as listed in the introduction section of this assessment and as identified by Natural England.

The main areas of potential concern we focused on were air quality impacts, radioactive substance emissions and discharges of thermal, chemical and nutrients from the cooling water system, including from the fish recovery and return system (FRR).

We have assessed these hazards in respect of the project itself, and in respect of the combined impact of the project with other permissions, plans or projects in the area.

For the water discharge activity permit assessment, we have reviewed technical reports written by the applicant NNBSGenCo and its consultants, Cefas and RHDHV. We have worked with the applicant and its consultants to update technical information to incorporate relevant scientific literature that has become available between the time of submission and our critical review. The applicant, Cefas and RHDHV have also worked with us to help us present their data in our HRA. Because of the need to make assumptions about precise biological responses to environmental change, we have also used expert judgement to reach our conclusions about effects and impacts.

For the combustion activity permit, our specialists in the Air Quality Modelling and Assessment Unit audited the air dispersion modelling the applicant submitted for aerial and noise impacts. We requested more realistic modelling from the applicant, reflecting the use and location of diesel generators during the operation of SZC. This modelling was used to conclude our appropriate assessment. We referred to the Air Pollution Information System to identify assessment criteria for aerial emissions and deposition, and expected biological responses within the relevant European sites.

For the radioactive substances activity permit, we carried out an assessment of the radiation doses to provide a separate and independent comparison with the applicant's assessment. The approach adopted in our assessment is consistent with that described in the dose assessment principles document (Environment Agency and others, 2012).

Our HRA conclusions referred to the relevant conservation objectives for the European sites being assessed, and information contained in the conservation objective supplementary advice packages.

The conclusions reflect our findings for the sites listed in the Relevant European sites section of this document.

We have concluded that there will be no likely significant effect on all the sites considered in the assessment of the RSA permit application, either alone or in combination with other permissions, plans or projects. An appropriate assessment was not required.

We have concluded that there was no adverse effect on the integrity of all the sites considered in this assessment for the operational CA and operational WDA permits for SZC either alone or in combination with other permissions, plans or projects.

3. Introduction

NNB Generation Company (SZC) Limited (NNB GenCo) proposes to construct and operate a new nuclear power station at Sizewell in Suffolk, to be known as Sizewell C (SZC).

The construction and operation of SZC requires various permissions from the Environment Agency, the Department for Business Energy and Industrial Strategy (BEIS) and the Marine Management Organisation (MMO) among others.

Permissions required from the Environment Agency included in this assessment are the following operational permits:

- combustion activities (CA) permit application (reference: EPR/MP3731AC/A001)
- radioactive substances activities (RSA) permit application (reference: EPR/HB3091DJ/A001)
- water discharge activities (WDA) permit application (reference: EPR/CB3997AD/A001)

Other permissions will also be required, such as for construction activities, but these have not yet been applied for. Where information is available, this will be included for an in-combination assessment within this habitats regulations assessment (HRA).

This information is the best available at the time of the determination of these operational permit applications to allow the HRA to be concluded.

When the construction permits are submitted, further information will become available. This will allow an HRA to be carried out when those construction permit applications are determined.

3.1. The Sizewell C project

The proposed SZC nuclear power station is located to the north of the existing Sizewell B power station on the Suffolk coast approximately halfway between Felixstowe and Lowestoft, to the north-east of the town of Leiston (see Figure 1). The applicant refers to the power station, together with the proposed associated developments, as the Sizewell C project.

The power station would comprise 2 UK European Pressurised Reactor (EPR™) units, with an expected net electrical output of approximately 1,670 megawatts (MW) per unit, giving a total site capacity of approximately 3,340MW.

Location of SZC



★ Location of SZC



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Figure 1: Location of SZC (indicated by the red star) on the Suffolk Coast.

SZC will be constructed immediately to the north of the existing Sizewell B (SZB) power station and will permanently occupy an area of approximately 35 hectares (ha) once constructed (see Figure 2).

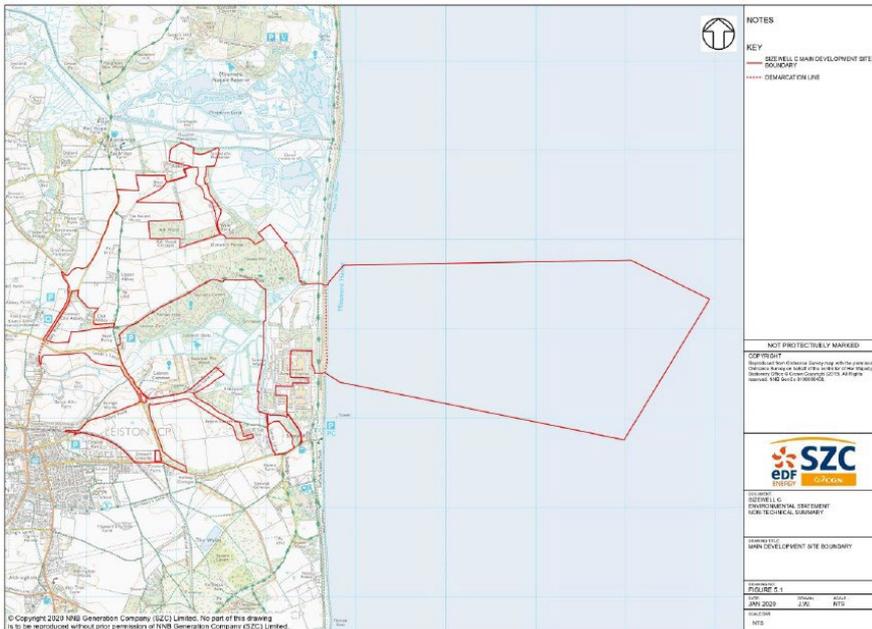


Figure 2: Location of the SZC main development site (indicated by the red outline). Taken from EDF Environmental Statement, Non-technical Summary, Fig 5.1 (EDFb, 2020)

Maps showing the location of SZC in relation to all the relevant European sites considered within this habitats regulations assessment report (as discussed in the relevant European sites section of this document) are provided in Annex 1: Site plans.

3.1.1. Construction

Construction of the Sizewell C power station is anticipated to take 9 to 12 years. Construction would be carried out in the following phases, which may overlap as work is carried out simultaneously in different areas across the main development site:

- phase 1: site establishment and preparation of earthworks
- phase 2: main site earthworks and completion of temporary infrastructure
- phase 3: main civil engineering works
- phase 4: mechanical and electrical installation
- phase 5: commissioning and land restoration

The construction of SZC will require environmental permits, but as of yet these have not been applied for. HRAs will be carried out as required when permit applications for the construction phase are submitted, including consideration of the potential for an in-combination effect between the permissions required for the construction and the operation of SZC.

3.1.2. Operation

The Sizewell C nuclear power station would have an operational life of 60 years. Power production is currently estimated to begin in 2033 for unit one, with the whole site expected to be operational in 2034 when unit one begins producing power. Sizewell C is designed to operate continuously 24 hours a day, apart from routine maintenance outages.

The operational permits required for SZC are outlined as follows.

Radioactive substances activity permit

An RSA environmental permit will be required for radioactive discharges to the environment (atmosphere and sea) resulting from the normal operation of the site. Normal operation includes the operational fluctuations, trends and events that are expected to occur over the lifetime of the facility, such as start-up, shutdown, and maintenance. It does not include increased discharges arising from other events, inconsistent with applying best available techniques (BAT), such as accidents, inadequate maintenance, and inadequate operation (including inadequate training and supervision).

Operational combustion activity permit

The operation of SZC requires an operational CA permit for the use of diesel generators during the commissioning and routine maintenance of the power station as well as during any loss of operation power scenarios.

Operational water discharge activity permit

The operation of SZC requires an operational WDA permit for 2 discharges covering the operational water discharge activities (WDAs) from hot functional testing during commissioning, through operation and up until decommissioning begins.

The discharge points are the cooling water system discharge, which includes sewage treatment works effluent, and the fish recovery and return system discharge.

3.1.3. Decommissioning

The applicant's Environmental Statement (ES) - Non-Technical Summary to support its Development Consent Order (DCO) application states that "the process of decommissioning would be divided into a number of activities leading to the clearance and de-licensing of the site and ultimately its release for re-use. The decommissioning strategy to be employed for Sizewell C would be 'early site clearance' and would begin as soon as practicable after the end of electricity generation at the site. The UK EPR™ reactor units have been designed with decommissioning in mind, to minimise the amount of radioactive waste when the site is cleared and de-licensed."

Decommissioning is currently out of the scope of this HRAR; an assessment will be made once permissions relating to the decommissioning of SZC are applied for.

4. Requirement for a habitats regulations assessment

4.1. The regulatory position

The requirement for a competent authority to carry out an appropriate assessment (referred to as 'AA') is set out in Article 6(3) of Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora (known as 'the Habitats Directive'). It requires that:

“3. Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

The Habitats Directive is a European Law that was transposed into English law by the Conservation of Habitats and Species Regulations 2017 (as amended) (known as 'the 2017 Regs'). Regulation 63 (1) to (6) of the 2017 Regs provides:

63.— Assessment of implications for European sites and European offshore marine sites

(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which—

(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of that site, must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives.

(2) A person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable it to determine whether an appropriate assessment is required.

(3) The competent authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority specifies.

(4) It must also, if it considers it appropriate, take the opinion of the general public, and if it does so, it must take such steps for that purpose as it considers appropriate.

(5) In the light of the conclusions of the assessment, and subject to regulation 64, the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

(6) In considering whether a plan or project will adversely affect the integrity of the site, the competent authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which it proposes that the consent, permission or other authorisation should be given.

European sites are any that would be included within the definition given in regulation 8 of the Conservation of Habitats and Species Regulations 2017 (as amended) and include:

- Special Areas of Conservation (SACs)
- candidate Special Areas of Conservation (cSACs)
- Sites of National Importance (SNIs)
- Special Protection Areas (SPAs)

European sites also include those given the same protection as a matter of government policy, such as:

- potential Special Protection Areas (pSPAs)
- possible Special Areas of Conservation (pSAC)
- listed or proposed Ramsar sites
- sites identified, or required, as compensatory measures for adverse effects on European sites, pSPAs, pSACs and listed or proposed Ramsar sites

The Conservation of Offshore Marine Habitats and Species Regulations 2017 implements the requirements of the Habitats and Birds Directives offshore. It ensures the protection of species that are found more than 12 nautical miles from the coast, and some SPA sites are designated under these Regulations.

The purpose of this assessment therefore is to ascertain, in view of the conservation objectives of the identified European sites, whether it can be concluded that the permits applied for will not adversely affect the integrity of the European sites in question, either alone or in combination with other relevant permissions, plans or projects (PPP).

Please note that the information within this assessment is based on the best available information at the time. Any information presented to us outside of the assessment timeframe may not be considered.

What follows in this document is a record of the habitats regulations assessment required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (SI No. 2017/1012) we have carried out.

The requirements of the Habitats Regulations still apply post EU exit, and we must continue to fulfil those requirements when carrying out our role as a competent authority. Confirmation that the Habitats Regulations still apply and an explanation of the changes made to them by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 are provided in the policy paper [‘Changes to the Habitats Regulations 2017’](#).

4.2. Guidance on completing an appropriate assessment

This section provides a summary of the guidance that has been considered when concluding the HRA for SZC.

[‘Habitats regulations assessments: protecting a European site’](#) produced by Defra, Natural England, Welsh Government and Natural Resources Wales, 2021.

This document provides guidance on how we, as a competent authority, must decide if a plan or project proposal that affects a European site can go ahead. It applies to European sites in England and Wales and their inshore waters (within 12 nautical miles of the coast).

The guidance confirms the need to apply the ‘precautionary principle’ at each stage of the HRA process, stating that “if you cannot rule out all reasonable scientific doubt of an adverse effect on a site’s integrity at stage 2: appropriate assessment, you must refuse the proposal unless an exemption (stage 3: derogation) is justified.”

When carrying out an appropriate assessment and ‘integrity test’, the guidance recommends that the following considerations should be made:

- the ecological requirements, conservation objectives and the current conservation status (if known) of the site’s designated features that might be affected by the proposal
- each potential effect on the European site, including the risk of combined effects with other proposals, and how they might impact on the site’s conservation objectives
- the scale, extent, timing, duration, reversibility and likelihood of the potential effects
- how certain you are of the effects occurring
- mitigation measures that have been proposed or conditions you can attach to avoid or limit the effects
- how confident you can be that mitigation measures will be effective over the whole lifetime of the proposal

This guidance concludes that “a proposal will pass the integrity test if your appropriate assessment can show that there is no reasonable scientific doubt that the proposal will not have an adverse effect on the integrity of the site.” It is only if this conclusion is reached that the permission can be granted.

[‘Managing Natura 2000 sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC. \(2019/C 33/01\)’](#)

This document provides guidelines to the European Union member states on the interpretation of certain main concepts used in Article 6 of the Habitats Directive and states “it is however expected to also facilitate the understanding of the mechanics of the Habitats Directive amongst anyone involved in the management of Natura 2000 sites and in the Article 6 permit procedure.”

In carrying out an HRA, the principles as set out in section 4.6 (‘What is meant by ‘appropriate assessment of its implications for the site in view of the site’s conservation objectives?’) and section 4.7 (‘Decision making’), must be applied.

Section 4.6.2 confirms that an appropriate assessment should be based on the “best available scientific knowledge in the field”, that the “information required should be up-to-date” and that it “should apply the best available techniques and methods to assess the extent of the effects...on the integrity of the site(s).” The issues that could be considered in an AA, are presented as follows:

- structure and function, and the respective role of the site’s ecological assets
- the area, representativity and degree of conservation of the habitat types on the site
- population size, degree of isolation, ecotype, genetic pool, age class structure, and degree of conservation of species under Annex II to the Habitats Directive present on the site
- any other ecological assets and functions identified on the site
- any threats affecting or representing a potential risk to species present on the site

The guidance confirms that when concluding an AA any effects from the proposal must be assessed against the site’s conservation objectives [4.6.3] and that ‘site integrity’ relates to these objectives [4.6.4]. When considering site integrity, “if none of the habitat types or species for which the site has been designated is significantly affected then the site’s integrity cannot be considered to be adversely affected. However, if just one of them is significantly affected, taking into account the site’s conservation objectives, then the site integrity is necessarily adversely affected.”

Section 4.6.4 concludes with “the integrity of the site involves its constitutive characteristics and ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the habitats and species for which the site has been designated and the site’s conservation objectives.”

Guidance is provided on the focus of the assessment within section 4.6.5, which states that “it is evident that the effects of each project will be unique and must be evaluated on a case-by-case basis” and “the appraisal of effects must be based on objective and, if possible, quantifiable criteria.”

Section 4.7 clearly states that the Environment Agency, as a competent authority, can only issue a permit “after they have made certain that the plan or project will not adversely

affect the integrity of the site. That is the case where no reasonable scientific doubt remains as to the absence of such effects.” The section concludes with “the onus is therefore on demonstrating the absence of adverse effects rather than their presence, reflecting the precautionary principle. It follows that the appropriate assessment must be sufficiently detailed and reasoned to demonstrate the absence of adverse effects, in light of the best scientific knowledge in the field.”

Use of supplementary advice packages

The following advice is given in the NE Designated Sites View webpage:

“The Supplementary Advice on Conservation Objectives (SACOs) presents attributes which are ecological characteristics or requirements of the classified species within a site. The listed attributes are considered to be those which best describe the site’s ecological integrity and which if safeguarded will enable achievement of the Conservation Objectives.

You should use this information, along with the conservation objectives and case-specific advice issued by Natural England when developing, proposing or assessing an activity, plan or project that may affect the site.

Any proposals or operations which may affect the site or its features should be designed so they do not adversely affect any of the attributes in the SACO or achievement of the conservation objectives.”

4.3. Habitats regulations assessment considerations and case law

Regulation 63 of the Habitats Regulations defines the procedure for the assessment of the implications of permission, plans, or projects (PPP) on European sites. The steps taken when carrying out a habitats regulations assessment, or HRA are summarised below.

4.3.1. Is an HRA required?

A course screening exercise must be carried out to identify European sites within relevant screening distances or zones of influence.

4.3.2. Screening for significant effects

A project is ‘likely to have a significant effect’ so as to require an appropriate assessment if there is a real risk of a likely significant effect occurring, that is, the risk of it occurring cannot be excluded on the basis of objective information: Landelijke Vereniging tot Behoud van de Waddenzee and Another v Staatssecretaris van Landbouw [2004] E.C.R. I-7405 (‘Waddenzee’), at [44].

Further guidance is provided in Bagmoore Wind Limited v. The Scottish Ministers (2012), XA101/11 (‘Bagmoore Wind’), at [45], “If the absence of risk in the plan can only be demonstrated after a detailed investigation, or expert opinion, that is an indicator that a

risk exists and the authority must move from preliminary examination to appropriate assessment. If this does occur, however, it is important, if the pitfalls noticed in this case are to be avoided in the future, that the competent authority make the fact that this transition has occurred clear.”

In regards to what can be considered when deciding whether a plan or project is likely to have a significant effect on a European site, further clarification is provided in *Peter Sweetman v. Coillte Teoranta* (2018), Case C-323/17 ('People over Wind'). The judgement states that “measures intended to avoid or reduce ... harmful effects” (typically referred to as ‘mitigation measures’) cannot be taken into account when deciding whether or not a plan or project is likely to have a significant effect on a European site. Competent authorities must instead take account of measures intended to avoid or reduce the harmful effects of a plan or project as part of the appropriate assessment.

4.3.3. In-combination assessment

Regulation 63 of the 2017 Regs requires the competent authority to consider within the assessment any PPP, including Environment Agency permissions and plans/projects that are likely to have a significant effect on a European site, either alone or in combination with other PPP. Where permissions indicate a likely significant effect, these will be assessed in combination with each other and with other relevant plans and projects.

The in-combination assessment can occur twice within the HRA process, once at the screening stage for likely significant effect and then again at the AA. At each step, inconsequential effects and effects where no pathway exists by which protected features could be affected are excluded. At each step, clarification is given on which emissions or possible effects will no longer be included in the in-combination assessments.

The applicant has currently applied for 3 operational permits; the construction permits associated with the project have not yet been applied for and as such some information is not yet available about their potential effects as design work is still being carried out in relation to those construction permits.

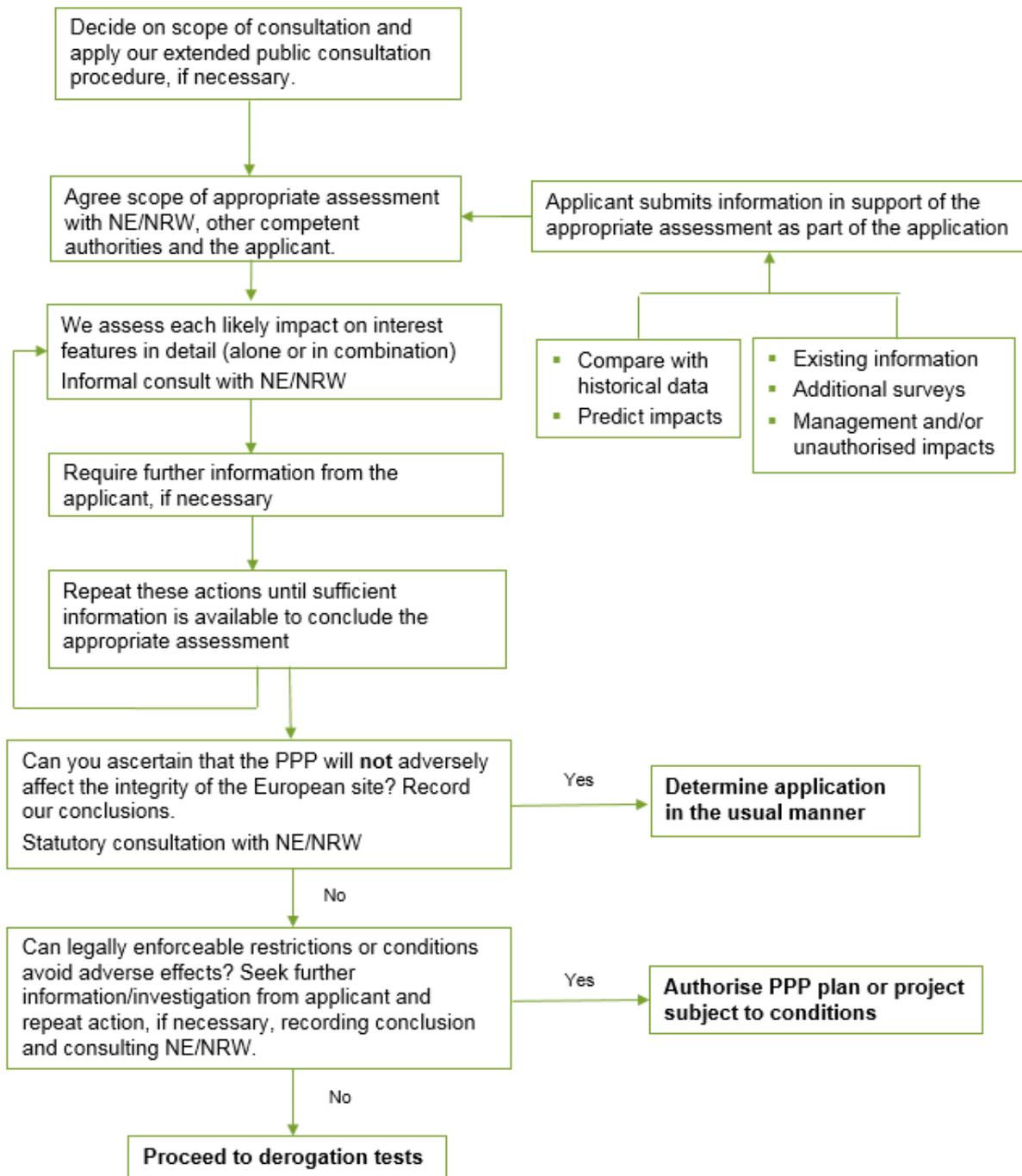
Where information is available, either through the permitting process or through the DCO application, this information will be considered to allow an in-combination assessment to be carried out for the operational permits. This information is the best available at the time of these permit applications' determination to allow the HRA to be concluded.

When the construction permits are submitted, further information will become available. This will allow a fuller alone and in-combination HRA to be carried out when those permit applications are determined.

4.3.4. Appropriate assessment

Government competent authority advice sets out the requirements of an appropriate assessment. The steps to follow are set out in **Figure 3**.

Figure 3: Summary of the steps to follow when carrying out an appropriate assessment



This AA stage determines whether, in view of the European site’s conservation objectives, it can be ascertained that the permissions ‘either alone or in combination with other plans or projects’ would not have an adverse effect on the integrity of the site.

The ‘integrity of the site’ relates to the site’s conservation objectives. This is because the appropriate assessment is to be carried out “in view of that site’s conservation objectives” as per Regulation 63(1) of the Habitats Regulations.

The Managing Natura advice explains the concept of the 'integrity of the site' in section 4.6.4. In particular, it explains that:

- “the expression ‘integrity of the site’ shows that the focus is here on the specific site. Thus, it is not allowed to destroy a site or part of it on the basis that the conservation status of the habitat types and species it hosts will anyway remain favourable within the European territory of the Member State”
- integrity “clearly relates to ecological integrity. This can be considered as a quality or condition of being whole or complete. In a dynamic ecological context, it can also be considered as having the sense of resilience and ability to evolve in ways that are favourable to conservation”
- “the ‘integrity of the site’ can usefully be defined as the coherent sum of the site’s ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated”
- “a site can be described as having a high degree of integrity where the inherent potential for meeting site conservation objectives is realised, the capacity for self-repair and self-renewal under dynamic conditions is maintained, and a minimum of external management support is required”

Taking each qualifying feature in turn, if the conservation objectives for a feature will be undermined, site integrity is not necessarily affected. On the contrary, site integrity cannot be considered to be adversely affected if the findings of an appropriate assessment demonstrate that the conservation objectives will not be undermined alone or in combination with other plans or projects. This would include low-impact effects that are too small or short-lived to undermine the achievement of the conservation objectives.

Where it cannot be concluded that the permission will not have an adverse effect on the integrity of a site, the permission should be refused, unless mitigation in the form of restrictions or conditions can be imposed to ensure there is no adverse effect on the integrity of the site(s).

It is unlawful to rely on the provision of mitigation in the absence of information regarding the effectiveness of the mitigation: Case C-142/16 Commission v Germany (26 April 2017), [34]-[38]. In Case C-293/17, C-294/17 Coöperatie Mobilisation for the Environment and Vereniging Leefmilieu, at [126] and [130], the Court of Justice of the European Union (CJEU) held that it is only when it is sufficiently certain that a measure will make an effective contribution to avoiding harm to the integrity of the site concerned, by guaranteeing beyond all reasonable doubt that the plan or project at issue will not adversely affect the integrity of that site, that such a measure may be taken into consideration in the AA. Additionally, the CJEU held that the AA of the implications of a plan or project for the sites concerned is not to take into account the future benefits of such 'measures' if those benefits are uncertain, because, among other things, the procedures needed to accomplish them have not yet been carried out or because the level of scientific knowledge does not allow them to be identified or quantified with certainty.

4.3.5. The precautionary approach

A competent authority must apply a precautionary approach when undertaking an appropriate assessment. In practical terms, this means that:¹

- the competent authority must be “certain” that the plan or project in question will not adversely affect the integrity of its site concerned: Waddenzee at paragraphs 56-57
- there should be “no reasonable scientific doubt” remaining as to the absence of such effects Waddenzee at [59]; and Case C-258/11 Sweetman and others v An Bord Pleanála [2014] P.T.S.R. 1092 at [45]-[49]
- this involves a “strict” precautionary approach: Smyth v Secretary of State for Communities and Local Government [2015] EWCA Civ 174 at [61]; that is, a “high standard of investigation”: R (Champion) v North Norfolk District Council [2015] 1 WLR 3710, at [41]
- the appropriate assessment “cannot have lacunae and must contain complete, precise and definitive findings and conclusion capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned”: Sweetman at [44]
- someone alleging that there was a risk that cannot be excluded on the basis of objective information must produce credible evidence that there was a real as opposed to hypothetical risk that must have been considered: Boggis v. Natural England [2009] EWCA Civ 1061 at [37]

The precautionary principle also has implications for the way in which proposed mitigation is treated by a competent authority:

- it is unlawful to rely on the provision of mitigation in the absence of information regarding the effectiveness of the mitigation: Case C-142/16 Commission v Germany (26 April 2017) at [34]-[38]
- it is only when it is sufficiently certain that a measure will make an effective contribution to avoiding harm to the integrity of the site concerned, by guaranteeing beyond all reasonable doubt that the project at issue will not adversely affect the integrity of that site, that such a measure may be taken into consideration in the appropriate assessment: Case C-293/17, C-294/17 Coöperatie Mobilisation for the Environment and Vereniging Leefmilieu at [126]

¹ See Jay J's summary in Wealden v SSCLG [2017] EWHC 351 (CD 13.1).

- the appropriate assessment must not take into account the future benefits of mitigation measures if those benefits are uncertain, for example, because the procedures needed to accomplish them have not yet been carried out or because the level of scientific knowledge does not allow them to be identified or quantified with certainty: Case C-293/17, C-294/17 *Coöperatie Mobilisation for the Environment and Vereniging Leefmilieu* at [126] and [130]

4.3.6. The derogation tests

If it is not possible to identify mitigation, it will be necessary to establish whether the permissions can be granted on the basis of “imperative reasons of overriding public interest” (IROPI). It may be possible to proceed with issuing the PPP if all 3 of the following derogation tests are met: there are no alternative solutions; it is of overriding public interest; and compensatory measures are secured.

4.3.7. Concluding the appropriate assessment

The competent authority may only grant consent for a project following an appropriate assessment if it is “convinced” that the project will not adversely affect the integrity of the site concerned. Where doubt remains as to the absence of adverse effects on the integrity of the site, the competent authority will have to refuse authorisation: *Waddenzee* at [56]-[59].

The essential questions for the competent authority carrying out an appropriate assessment are: “what will happen to the site if this plan or project goes ahead; and is that consistent with ‘maintaining or restoring the favourable conservation status’ of the habitat or species concerned?”: C-258/11 *Sweetman v An Bord Pleanála* [2014] P.T.S.R. 1092, [50] of AG Sharpston’s Opinion.

Article 1(i)(b) of the Habitats Directive defines the favourable conservation status of a protected species to be when, among other things:

“...population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitat.”

The Supreme Court has held that “no special procedure is prescribed” for an appropriate assessment, but “a high standard of investigation is demanded” and “the issue ultimately rests on the judgment of the authority”: *R (Champion) v North Norfolk District Council* [2015] 1 W.L.R. 3710, at [41].

In Case C-164/17 *Grace v An Board Pleanála (ESB Wind Developments intervening)* at [39], the European Court of Justice (CJEU) held that an appropriate assessment may not have lacunae and must contain complete, precise and definitive findings and conclusions capable of dispelling all reasonable scientific doubt as to the effects of the proposed works on the protected area concerned. Furthermore, in Case C-461/17 *Holohan v An Board Pleanála*, at [33] and [37], the CJEU held that all aspects of a project which might affect

the site's conservation objectives must be identified and all the habitats and species for which the site is protected must be catalogued.

In carrying out an appropriate assessment, if no scientific certainty can be established even after having exhausted all scientific means and sources, it will be necessary to work with identified and reasoned probabilities and estimates: Waddenzee AG Kokott's Opinion [97]-[98].

On completing an AA, the competent authority is required to consult with the statutory nature conservation body (SNCB) and have regard to any representations made by that body within such reasonable time as the authority specifies. Case law has found that the views of expert statutory consultees in the field of nature conservation are to be given weight by decision-makers and that cogent and compelling reasons are required for departing from such advice: for example, *Hart DC v SSCLG* [2008] 2 P. & C.R. 16 at [42] and *R (Akester) v Defra* [2010] EWHC 232 (Admin) at [112]. Decision makers, such as the Environment Agency in carrying out our AA, have an enhanced margin of appreciation in cases involving scientific, technical and predictive assessments: *R (on the application of Mott) v Environment Agency* [2016] EWCA Civ [2016] 1 WLR 4338 at [64, 69 and 74].

4.3.8. Consideration of mitigation measures

The following is from the 'Habitats regulations assessments: protecting a European site' competent authority guidance available on gov.uk website:

"As part of your appropriate assessment, you should consider any mitigation measures that have been included as part of the proposal to remove or reduce potential adverse effects."

"You should assess what difference the mitigation measures would make to the effects of the proposal on the site. You must be sure that the mitigation will be effective. To do this, your assessment will need to show:

- how the measures would be implemented and monitored, and how long for
- how you would enforce the measures if you had to
- how certain you are that the measures would work to avoid or reduce effects on the site
- how long it will take for the measures to take effect
- the level of success you expect, or what changes you'd make if monitoring shows the measures may fail

You must make sure that any necessary mitigation measures are put in place now and not wait for adverse effects to happen first."

Attach conditions

The gov.uk guidance states that:

“If mitigation measures are needed to avoid adverse effects, you should attach conditions or take other necessary steps to make sure the measures are carried out.

You can make conditions flexible. For example, you could remove conditions if it’s clear from monitoring that the risk of negative effects is lower than first thought.

You should be sure you can enforce the conditions if you need to, and that the proposer is capable of fulfilling them.”

Monitoring conditions

A competent authority can attach monitoring conditions to a permit to “check whether the mitigation measures are working as expected”, using monitoring as an early warning to identify the risk of any new potential impacts.

The gov.uk guidance states that:

“Monitoring conditions should clearly state what action the proposer will need to take to make sure adverse effects do not occur if either the:

- impacts are likely to be greater than expected
- mitigation might not be working as expected”

4.3.9. Functional linkage

In developing the methodology for this appropriate assessment, we have referred to a Natural England commissioned report (Chapman & Tyldesley, 2016), on functional linkage.

Within the report, the term ‘functional linkage’ refers to “the role or ‘function’ that land or sea beyond the boundary of a European site might fulfil in terms of ecologically supporting the populations for which the site was designated or classified. Such land is therefore ‘linked’ to the European site in question because it provides an important role in maintaining or restoring the population of qualifying species at favourable conservation status.”

4.4. Relevant European sites

The European sites identified as requiring assessment within this HRA for the RSA, CA and WDA permissions are listed below, further information on the sites and their features are available in Annex 2 of this HRAR.

4.4.1. Sites within the identified zones of influence:

- Alde-Ore and Butley Estuaries SAC
- Alde-Ore Estuary Ramsar
- Alde-Ore Estuary SPA

- Benacre to Eastern Bavents SPA
- Dew's Pond SAC
- Minsmere to Walberswick Heaths and Marshes SAC
- Minsmere-Walberswick Ramsar
- Minsmere-Walberswick SPA
- Orfordness to Shingle Street SAC
- Outer Thames Estuary SPA
- Sandlings SPA
- Southern North Sea SAC

4.4.2. Functionally linked sites

- Coquet Island SPA
- Flamborough and Filey Coast SPA
- Humber Estuary Ramsar
- Humber Estuary SAC
- Minsmere-Walberswick Heaths and Marshes SSSI
- Plymouth Sound and Estuaries SAC
- Sizewell Marshes SSSI
- The Wash and North Norfolk Coast SAC

Sites outside of the identified zones of influence were considered where appropriate for the WDA permit and these are listed in Annex 2. Similarly, 10 continental European sites were also considered during the LSE screening stage for the WDA permit and these are also listed in Annex 2.

These sites all contain features that have the potential to be directly, or indirectly affected by at least one of the permissions. Sites that were identified in the HRAR for the SZC project, but do not have the potential to be affected by the proposal, due to a lack of an impact mechanism or sensitive receptor, are not included in this assessment.

Maps showing the location of the sites are provided in Annex 1.

The supporting conservation objectives for the European sites requiring assessment are provided in Annex 2.

An ecological narrative for the features of the European sites is included in Annex 3.

5. Operational radiological substances activity permit

The radioactive substances activity permit HRA is provided in Book 1 of this HRAR.

This assessment was able to conclude no likely significant effect on the interest features of all sites within the 10km screening distance of SZC, therefore an appropriate assessment was not required.

Please note that the potential for this activity to impact upon SSSIs has been fully considered in a separate assessment.

6. Operational combustion activity permit

The operational combustion activity permit HRA is provided in Book 2 of this HRAR.

6.1. Screening for likely significant effects

6.1.1. Commissioning

The screening for likely significant effects identified that an appropriate assessment was required for the sites listed below due to the emission and deposition of pollutants during the commissioning of diesel generators:

- Minsmere to Walberswick Heaths and Marshes SAC
- Minsmere- Walberswick SPA
- Minsmere-Walberswick Ramsar
- Outer Thames Estuary SPA
- Sandlings SPA

A likely significant effect was also identified for the Sizewell Marshes SSSI and Minsmere-Walberswick Heaths and Marshes SSSI functionally linked land. Please note that the potential for this activity to impact upon SSSI's has been fully considered in a separate formal SSSI assessment.

6.1.2. Routine operation

The screening for likely significant effects identified that that an appropriate assessment was required for the sites listed below due to the emission and deposition of pollutants during the routine testing of diesel generators:

- Minsmere to Walberswick Heaths and Marshes SAC
- Minsmere-Walberswick SPA
- Minsmere-Walberswick Ramsar
- Outer Thames Estuary SPA
- Sandlings SPA

A likely significant effect was also identified for the Sizewell Marshes SSSI and Minsmere-Walberswick Heaths and Marshes SSSI functionally linked land. As previously stated, the

potential for this activity to impact upon SSSIs has been fully considered in a separate assessment.

6.2. Appropriate assessment

The appropriate assessment determined whether the following risks associated with the operational CA could lead to an adverse effect on the features of the sites where a likely significant effect was identified:

- toxic contamination
- nutrient enrichment
- acidification

An appropriate assessment of the effects of a LOOP scenario was also be carried out on all the relevant sites within 10km of SZC. This identified the following additional sites:

- Alde, Ore and Butley Estuaries SAC
- Alde-Ore Estuaries Ramsar
- Alde-Ore Estuaries SPA
- Dew's Pond SAC
- Orfordness to Shingle Street SAC

We were able to conclude no adverse effect on the features of the European sites where a likely significant effect had been identified alone or in combination, in view of the sites' conservation objectives.

6.3. Integrity test

Article 6(3) of the Habitats Directive requires that a competent authority "shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned."

Managing Natura advice (Commission Notice C(2018)) explains the concept of the 'integrity of the site' at section 4.6.4 as the "coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated."

We do not believe that, for those European sites requiring appropriate assessment, the operational CA permit will impact upon their ecological structure, function and ecological processes across their whole area.

We were able to reach this conclusion due to the modelling results confirming that the effects assessed would be low-impact, too small, and for the commissioning of SZC CA, too short-lived to undermine the achievement of the conservation objectives. Site integrity cannot be considered to be adversely affected if the findings of an appropriate assessment

demonstrate that the conservation objectives will not be undermined alone or in combination with other PPP.

7. Operational water discharge activity permit

The operational water discharge activity permit HRA is provided in Book 3 of this HRAR.

7.1. Screening for likely significant effects conclusion

For this assessment, a very high level and precautionary LSE stage was carried out considering a simple source receptor pathway link due to the bespoke detailed modelling submitted with the application and associated detailed assessment work that was carried out for the HRAR.

Using this simple screening process, the following European sites were identified for appropriate assessment:

- Alde-Ore and Butley Estuaries SAC
- Alde-Ore Estuary Ramsar
- Alde-Ore Estuary SPA
- Benacre to Easton Barents SPA
- Minsmere-Walberswick SPA
- Minsmere-Walberswick Ramsar
- Orfordness to Shingle Street SAC
- Outer Thames Estuary SPA
- Southern North Seas SAC
- The Wash and North Norfolk Coast SAC

Please note that the potential for this activity to impact upon SSSIs has been fully considered in a separate formal SSSI assessment.

7.2. Appropriate assessment conclusion

The appropriate assessment determined whether the following risks associated with the operational WDA could lead to an adverse effect on the features of the sites where a likely significant effect was identified:

- change in thermal regime
- toxic contamination (chemical)
- nutrient enrichment

We were able to conclude no adverse effect on the features of the European sites where a likely significant effect had been identified alone or in combination, in view of the sites' conservation objectives.

7.3. Integrity test

Article 6(3) of the Habitats Directive requires that a competent authority “shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned.”

Managing Natura advice (Commission Notice C (2018)) explains the concept of the “integrity of the site” at section 4.6.4 as the “coherent sum of the site’s ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated.”

We do not believe that, for those European sites requiring appropriate assessment, the operational WDA permit will impact upon their ecological structure, function and ecological processes across their whole area.

We were able to reach this conclusion due to the bespoke modelling results confirmed that the effects identified above would be low-impact and too small to undermine the achievement of the conservation objectives or would have no connectivity with the more distant sites. Site integrity cannot be considered to be adversely affected if the findings of an appropriate assessment demonstrate that the conservation objectives will not be undermined alone or in combination with other PPP.

8. Conclusion

We have completed the appropriate assessment and our conclusion is:

- the operational radioactive substances activity permit was screened out at the likely significant effects stage and did not require an appropriate assessment
- the operational combustion activity permit can be ascertained to have no adverse effect on the integrity of the following sites, either alone or in combination with other plans and projects:
 - Alde, Ore and Butley Estuaries SAC
 - Alde-Ore Estuaries Ramsar
 - Alde-Ore Estuaries SPA
 - Dew’s Pond SAC
 - Minsmere-Walberswick Ramsar
 - Minsmere-Walberswick SPA
 - Minsmere to Walberswick Heaths and Marshes SAC

- Orfordness to Shingle Street SAC
- Outer Thames Estuary SPA
- Sandlings SPA
- Sizewell Marshes SSSI and Minsmere-Walberswick Heaths and Marshes SSSI functionally linked land

This conclusion is not dependent on any mitigation measures or conditions.

- the operational water discharge activity permit can be ascertained to have no adverse effect on the integrity of the following sites, either alone or in combination with other plans and projects:
 - Alde-Ore and Butley Estuaries SAC
 - Alde-Ore Estuary Ramsar
 - Alde-Ore Estuary SPA
 - Benacre to Easton Bavents SPA
 - Minsmere-Walberswick SPA
 - Minsmere-Walberswick Ramsar
 - Orfordness to Shingle Street SAC
 - Outer Thames Estuary SPA
 - Southern North Sea SAC
 - The Wash and North Norfolk Coast SAC

This conclusion is not dependent on any mitigation measures or conditions.

References

Case C-142/16 Commission v Germany.

Case C-164/17 Grace v An Board Pleanála (ESB Wind Developments intervening).

Case C-461/17 Holohan v An Board Pleanála.

Chapman, C. and Tyldesley, D., 2016. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions. Natural England Commissioned Reports, Number 207.

EDFa, 2020. The Sizewell C Project: 6.1, Volume 1 Introduction to the Environmental Statement Chapter 2 Overview of the Sizewell C Project Figure 2.1. PINS Reference Number: EN010012.

EDFb, 2020. The Sizewell C Project: 6.1, Environmental Statement – Non-technical Summary. PINS Reference Number: EN010012.

Environment Agency, Scottish Environment Protection Agency, Northern Ireland Environment Agency, Health Protection Agency and Food Standards Agency, , 2012. Principles for the Assessment of Prospective Public Doses arising from Authorised Discharges of Radioactive Waste to the Environment. Environment Agency, Penrith, Cumbria.

European Commission, Directorate General for Environment.. Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Publications Office, 2019, <https://data.europa.eu/doi/10.2779/854571>

European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC).

Hart District Council v Secretary of State for Communities and Local Government (2008).

R (Akester) v Defra (2010).

R (Champion) v North Norfolk District Council (2015).

R (on the application of Mott) v Environment Agency (2016).

Smyth v Secretary of State for Communities and Local Government (2015).

List of abbreviations

Term	Meaning
AA	Appropriate assessment.
BAT	Best available techniques.
BEIS	Department for Business, Energy and Industrial Strategy.
CA	Combustion activity.
Cefas	Centre for Environment, Fisheries and Aquaculture Science, which acted as a research contractor for the applicant.
cSAC	candidate Special Area for Conservation.
CJEU	Court of Justice of the European Union.
DCO	Development Consent Order.
EPR	European Pressurised Reactors.
ES	Environmental Statement.
FRR	Fish recovery and return.
HRA	Habitats regulations assessment.
HRAR	Habitats regulations assessment report.
IROPI	Imperative reasons of overriding public interest.
LSE	Likely significant effect.
MMO	Marine Management Organisation.
MW	Megawatts.
NNB GenCo	NNB Generation Company (SZC) Limited.

Term	Meaning
PPP	Permissions, plans and projects.
pSPA	proposed Special Protection Area.
pSAC	possible Special Area for Conservation.
Ramsar	A site designated under the criteria of the Ramsar Convention on Wetlands of International Importance.
RSA	Radioactive substances activity.
SAC	Special Area for Conservation.
SACO	Supplementary advice on conservation objectives.
SNCB	Statutory nature conservation body.
SNI	Sites of National Importance.
SPA	Special Protection Area.
SZB	Sizewell B.
SZC	Sizewell C.
WDA	Water discharge activity.

Glossary

Term	
Adverse effect	An effect that would lead to a European site's conservation objectives being undermined or would prevent a site from achieving its conservation objectives. This, in turn, would lead to an effect on the integrity of the site.
Commissioning	The process by which a nuclear power station/reactor is inspected, checked and tested in order to allow it to begin operation.
Conservation objectives	The requirements needed to conserve, restore or prevent deterioration or significant disturbance of a site's qualifying features. By meeting the objectives, the site will contribute to a favourable conservation status for that species or habitat type at a UK level.
Decommissioning	The process by which a nuclear power station/reactor has its fuel removed, the plant and facilities taken down and the site restored to an agreed end state.
European sites	Internationally important wildlife conservation sites such as SPAs and SACs which are protected under UK law. In Europe, they are protected under the European Council Directive 92/43/EEC.
Fish recovery and return system	A system by which impinged fish and invertebrates will be washed off the rotating screening that protect the cooling water system and returned to the sea through dedicated outlets.
Functional linkage	Refers to the role or 'function' that land or seas beyond the boundary of a European site might fulfil in terms of ecologically supporting the site's features.
Habitats Directive	Refers to Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.
Habitats Regulations	Refers to the Conservation of Habitats and Species Regulations 2017 (as amended).

Term	
Hot functional testing	Part of the commissioning process which involves increasing the temperature of the reactor coolant system and carrying out comprehensive tests to ensure that coolant circuits and safety systems are operating as they should.
Integrity test	A competent authority must be able to rule out all reasonable scientific doubt that the proposal would not have an adverse effect on the integrity of the site before it can allow the proposal to go ahead.
Likely significant effect	The result of a risk that cannot be ruled out on the basis of objective information and could undermine a site's conservation objectives. It is a possibility, not a probability.
Precautionary principle	This is used by decision-makers in managing risk and is applied at the likely significant effect and appropriate assessment stages. There must be no reasonable scientific doubt when reaching a conclusive of no adverse effect on site integrity.
Site integrity	This is defined as “the coherence of its [European site's] ecological structure and function across its whole area, that enable it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which the site is (or will be) designated” Managing Natura advice (Commission Notice C(2019)).
Special Area of Conservation	A protected area designated under the Conservation of Habitats and Species Regulations 2017 in England and Wales, or the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) for UK offshore areas. A Special Area of Conservation is part of a network of import high-quality conservation sites that will make a contribution to conserving the habitats and species identified in Annexes I and II, respectively of European Council Directive 92/43/EEC , the Habitats Directive.
Special Protection Area	Special Protection Areas are protected areas for birds classified under the Wildlife & Countryside Act 1981 (as amended), the Conservation (Natural Habitats, & c.) Regulations 2010 (as amended) and the Conservation of

Term	
	Offshore Marine Habitats and Species Regulations 2017 (as amended).
The 2017 Regs	Refers to the Conservation of Habitats and Species Regulations 2017 (as amended).

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