

Habitats Regulations Assessment: Site Report for Braystones

EN-6: Revised Draft National Policy Statement for Nuclear Power Generation

Habitats Regulations Assessment of the revised draft Nuclear National Policy Statement

Habitats Regulations Assessment (HRA) screening and Appropriate Assessment (AA) of the revised draft Nuclear NPS including potentially suitable sites, has been undertaken in parallel with the Appraisal of Sustainability (AoS). These strategic assessments are part of an ongoing assessment process that will continue with project level assessments. Applications to the IPC for development consent will need to take account of the issues identified and recommendations made in the strategic, plan level HRA/AA; and include more detailed project level HRA as necessary.

The Habitats Regulations Assessment is provided in the following documents:

HRA Non-Technical Summary

Main HRA of the revised draft Nuclear NPS

- Introduction
- Methods
- Findings
- Summary of Sites
- Technical Appendices

Annexes to the Main HRA Report: Reports on Sites

- Site HRA Reports
- Technical Appendices

All documents are available on the website of the Department of Energy and Climate Change at www.energy-nps-consultation.decc.gov.uk

This document is the Habitats Regulations Assessment Site Report for Braystones.

This document has been produced by the Department of Energy and Climate Change based on technical assessment undertaken by MWH UK Ltd with Enfusion Ltd and Nicholas Pearson Associates Ltd.

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1 Introduction

This HRA Report

- 1.1 This report sets out the Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment components of the HRA of the proposals for Braystones. This site was nominated into the Strategic Siting Assessment (SSA) process to be considered as a potentially suitable site for the deployment of a new nuclear power station(s) by 2025. This site report is one of the Site HRA Reports comprising Part III of the HRA Report that accompanies the revised draft Nuclear National Policy Statement (NPS). Part II of the HRA report for the revised draft Nuclear NPS sets out details of the HRA process, methods, findings and summary of the individual assessments at the nominated sites. Part I of the HRA report is a Non-Technical Summary.
- 1.2 This HRA has been undertaken at a strategic level and is part of an ongoing assessment process that started in July 2008 and will continue with project level assessments. Sites that are assessed to be potentially suitable for the deployment of new nuclear power stations by the end of 2025, will be listed in the Nuclear NPS; developers will be able to apply to the Infrastructure Planning Commission¹ for development consent to develop new nuclear power stations at those sites.
- 1.3 Each planning application will need to be accompanied by a project level HRA report, alongside an Environmental Statement reporting the findings of a detailed Environmental Impact Assessment (EIA). The proposals will also be subject to various other regulatory and licensing requirements.

The Nuclear National Policy Statement

- 1.4 The revised draft Nuclear NPS sets out a list of sites that, following the Strategic Siting Assessment, have been found to be potentially suitable for the siting of new nuclear power stations, and the framework by which development consent applications on these sites should be considered by the Infrastructure Planning Commission.

¹ The Government announced in June 2010 its intention to amend the Planning Act 2008 and abolish the IPC. In its place, the Government envisages that a Major Infrastructure Planning Unit (MIPU) will be established within the Planning Inspectorate. Once established, the MIPU would hear examinations for development consent and would then make a recommendation to the Secretary of State. It would not itself determine applications and decisions would be taken by the relevant Secretary of State. These proposed reforms require primary legislation. Until such time as the Planning Act 2008 is amended, the IPC will continue as set out in that Act. As a result, the NPSs will provide the framework for decisions by the IPC on applications for development consent for major infrastructure projects, and under the new arrangements will provide the framework for recommendations by the MIPU to the Secretary of State.

HRA Process

- 1.5 The Habitats Directive² protects habitats and species of European nature conservation importance. Together with the Birds Directive³, the Habitats Directive established a network of internationally important sites designated for their ecological status. Special Protection Areas (SPAs) are designated under the Birds Directive in order to protect rare, vulnerable and migratory birds. Special Areas of Conservation (SACs), and Sites of Community Importance (SCIs) are designated and defined under the Habitats Directive and promote the protection of flora, fauna and habitats. Internationally important wetlands are designated under the Ramsar Convention 1971. UK Government policy states that the Ramsar sites are afforded the same protection as SPAs and SACs for the purpose of considering development proposals that may affect them⁴. These sites combine to create a Europe-wide 'Natura 2000' network of European Sites, which are hereafter referred to as 'European Sites'⁵ in this and other HRA reports⁶.
- 1.6 Habitats Regulations Assessment (HRA) tests whether the impacts identified as arising from a proposal, plan or project are likely to have a significant and adverse effect on European Sites of nature conservation importance. Article 6(3) of the Habitats Directive requires an '*appropriate assessment*' to be undertaken on proposed plans or projects which are not necessary for the management of the European Site, but which are likely to have a significant effect on one or more European Sites either individually, or in combination with other plans, programmes or projects. In England and Wales this requirement is transposed into UK law by the Conservation of Habitats and Species Regulations 2010⁷ (the 'Habitats Regulations'). The process of fulfilling the requirements of the Directive and the Regulations is now in practice referred to as HRA, and Appropriate Assessment (AA) if required, forms a stage within the overall HRA process.
- 1.7 The full details of the HRA method and process, including the key principles and any assumptions made in this plan level HRA of the Nuclear NPS and nominated sites, are outlined in Part II of the HRA Report. This report covers the screening and Appropriate Assessment (AA) stages of the HRA for the development of the nominated site at Braystones, as outlined in Table 1. It takes into account the information contained within the site nomination submitted to

2 Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:HTML>

3 Council Directive 79/409/EEC on the protection of wild birds: <http://eur-lex.europa.eu/LexUriServ/site/en/consleg/1979/L/01979L0409-20070101-en.pdf>

4 ODPM, 2005, Planning Policy Statement 9: Biological and Geological Conservation; and ODPM Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System

5 Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of 'European Sites' for the purposes of this report.

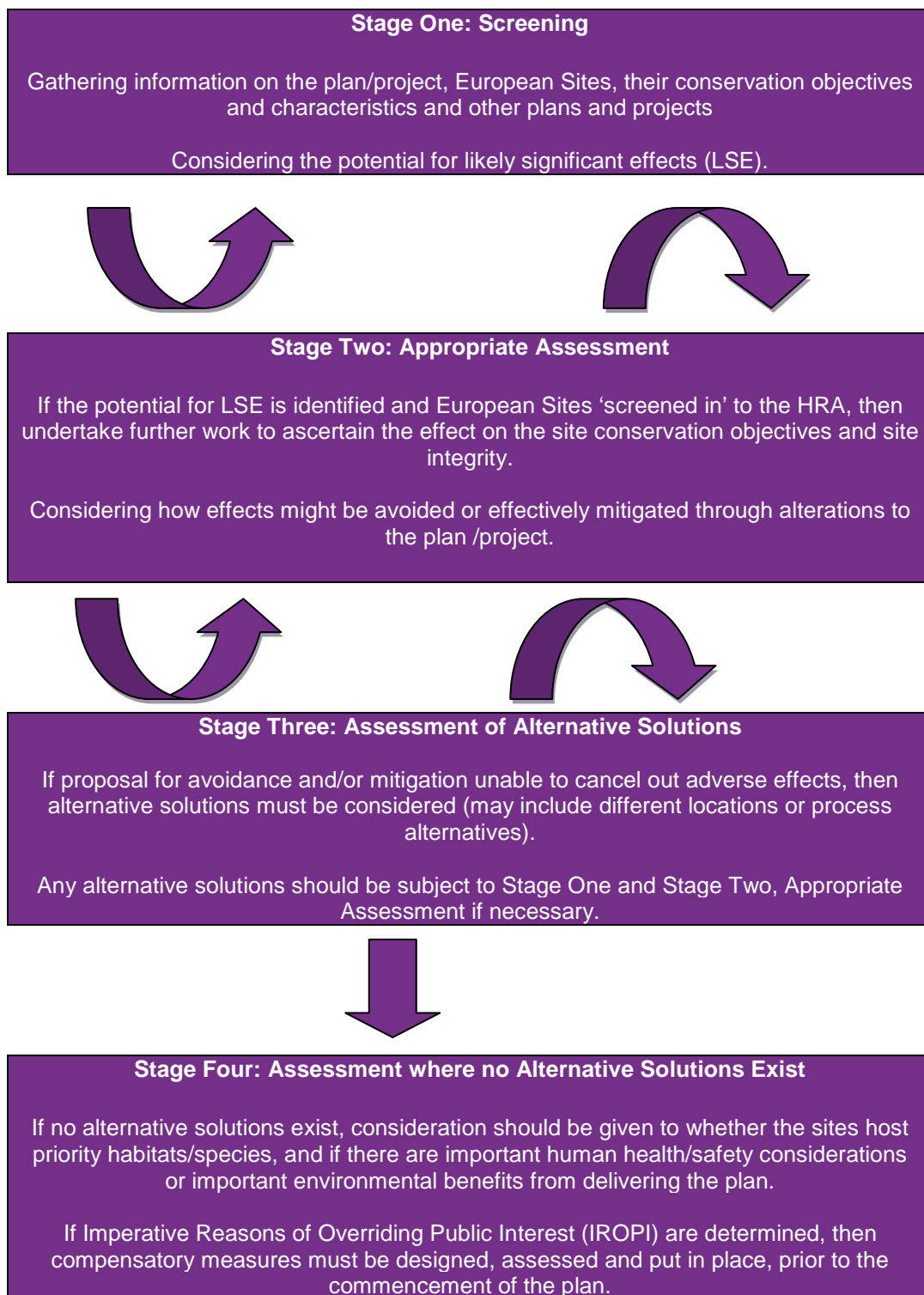
6 The term European Site is used throughout all the Site HRA Reports and in the Main HRA Report, and incorporates SACs, SPAs, SCIs and Ramsar sites.

7 Regulation 106 applies the requirements and controls in relation to plans under the regulations to National Policy Statements designated under the Planning Act 2008

Government by the nominator (RWE Npower) in March 2009⁸. The HRA process is typically iterative and assessments have been revised on the basis of commentary from the Statutory Consultees.

⁸ <http://www.energynpsconsultation.decc.gov.uk>

Table 1: Habitats Regulations Assessment: Summary Overview of Key Stages⁹



⁹ Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission DG Environment (2001), http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

2 HRA Screening of Braystones

2.1 The nominated site at Braystones is located on the Cumbrian coast, north of the village of Braystones. The nearest town is Egremont situated 7.24km to the north-east. The nomination¹⁰ identifies approximately 72 hectares of land to the north of Braystones village with the approximate centre of the nomination area at Ordnance Survey reference NY 003 066. The location of the site is shown in Figure 1.

Screening

2.2 The screening process forms the first stage of any HRA and is focused on the 'likely significant effect' (LSE) test. The aim of the LSE test is to determine whether the plan either alone, or in-combination with other plans and projects is likely to result in a significant effect at European Site[s]. This is essentially a risk assessment process that seeks to understand whether there are any mechanisms for identified impacts arising from the plan to adversely affect the European Sites (i.e. a cause-effect pathway)¹¹. The key questions asked are:

- would the effect undermine the conservation objectives for the site?
- can significant effects be excluded on the basis of objective information?

2.3 The tasks undertaken to complete the screening process for Braystones are described below.

European Site Identification and Characterisation

2.4 European Sites within a 20km radius of the nominated site were scoped into the HRA screening process, as set out in Table 2 and Figure 2. This area of search reflects guidance recommendations¹², but also takes into account that distance is in itself not a definitive guide to the likelihood or severity of impacts known to arise from developments, (for example, inaccessibility/ remoteness is typically more relevant) and factors such as the prevailing wind directions, river and groundwater flow direction will all have a bearing on the relative distance at which an impact can occur. It should be noted that an area of land can be covered by more than one European designation.

¹⁰ Nomination documents submitted by the nominator (RWE npower) at <http://www.nuclearpowersiting.decc.gov.uk/nomination/braystones/>

¹¹ Appropriate Assessment of Plans (Therivel, May 2008)

¹² Communities and Local Government (2006) Planning for the Protection of European Sites: Appropriate Assessment – Guidance for Regional Spatial Strategies and Local Development Documents; <http://www.communities.gov.uk/documents/planningandbuilding/pdf/160442.pdf>.

Table 2: European Sites within 20km of the nominated site

	Designation	Distance from nominated site ¹³
Drigg Coast	SAC	7 km
River Ehen	SAC	5.8 km
Wast Water	SAC	13 km
Lake District High Fells	SAC	11 km
River Derwent and Bassenthwaite Lake	SAC	15 km
Borrowdale Woodland Complex	SAC	18 km

2.5 **Appendix 1** details the characteristics of the Six European Sites scoped into the HRA screening assessment. The characterisations include an overview of the sites’:

- ecological features;
- their qualifying features/ reasons for designation;
- conservation objectives and the condition status of their constituent Sites of Special Scientific Interest (SSSIs) where available;
- environmental conditions necessary to support site integrity; and site vulnerabilities, including any key pressures or trends known to be affecting the sites.

Nominated site Review and Identification of Likely Impacts

2.6 The nomination states that an estimated 30 to 50 hectares would be required for operational requirements within the nominated site, and that additional land outside the boundary is likely to be needed for coastal infrastructure, including cooling water intake and outfall pipework and possibly a construction-phase Marine Off-Loading Facility. The nominator was not required to provide details of the proposed development at this stage.

2.7 From the nomination documents¹⁴, it is assumed that the nomination is for the development of a nuclear power station incorporating:

- at least one nuclear reactor;
- coastal defences and flood protection measures;
- construction stage areas and facilities, including a Marine Off-Loading Facility;
- infrastructure and facilities related to the operation of a nuclear power station;
- new access road;

¹³ Distance measured from nearest site boundary.

¹⁴ Op cit.

- transmission and cooling water infrastructure (if the direct water cooling option is utilised, tunnels/pipe-work will extend to the open sea for up to 3km from potentially any seaward point along the coast); and
 - interim radioactive waste storage facilities.
- 2.8 The full range of potential impacts on environmental conditions and biodiversity arising from the development of new nuclear power stations are outlined and discussed in Part II of the HRA Report. Impacts of particular relevance to the nominated site include: habitat (and species) loss and fragmentation, coastal squeeze and effects on water resources/quality and air quality. These issues are discussed in detail in the HRA Screening Assessment task below.

Identification and Consideration of Other Plans, Programmes and Projects

- 2.9 It is a requirement of Article 6(3) of the Habitats Directive that HRA examines the potential for plans and projects to have a significant effect either individually or '*in combination*' with other plans, programmes and projects (PPPs). The aim is that plans and projects are evaluated within the context of the prevailing environmental conditions and that account is taken of the in effects.
- 2.10 Plan level HRA practice has shown that the in-combination assessment is most relevant where plans might otherwise be screened out because their individual contribution is inconsequential. The requirement is that the HRA assessment process should take account of reasonably foreseeable impacts (as opposed to every conceivable effect).¹⁵
- 2.11 For the purposes of this assessment consideration was given to:
- Local Development Framework documents
 - Major Development Schemes (including transport plans/ airport expansion) where relevant.
- 2.12 Where relevant, reference was also made to:
- Draft Coastal Habitat Management Plans
 - Catchment Abstraction Management Strategies
 - Shoreline Management Plans
 - River Basin Management Plans
 - Draft Water Resource Management Plans
 - Minerals and Waste Development Frameworks

¹⁵ Tyldesley, D. (2009) Habitats Regulations Assessment of Local Development Documents. Revised Draft Guidance for Natural England, Natural England, Sheffield.

- 2.13 A summary of the key plans referred in the assessment process are provided in **Appendix 2**.

Screening Assessment

- 2.14 The following sections outline the issues arising from the screening assessment (LSE test) undertaken at **Appendix 3**, for Braystones. The Screening Assessment indicated that development at Braystones has the potential to adversely affect European Sites as a result of:

- **Water Resources and Quality Impacts**
- **Habitat (and Species) Loss and Fragmentation**
- **Coastal Squeeze**
- **Air Quality.**

- 2.15 Each of these issues is considered in turn below. It should be noted that, given the closest European Site is the River Ehen SAC situated 5.8km to the north of the site, the potential for impacts on qualifying habitats or supporting habitats for qualifying species as a result of disturbance (noise, light and visual) has been discounted during the Screening Assessment and is not considered further as a topic within this report

Water Resources and Quality Impacts

European Sites for which no significant effects are likely (see Appendix 3):

- Lake District High Fells SAC
- Borrowdale Woodland Complex SAC

European Sites for which significant effects are likely (see below):

- Drigg Coast SAC
- River Ehen SAC
- Wast Water SAC
- River Derwent and Bassenthwaite Lake SAC

- 2.16 The quality of fresh and marine water that feeds and supports the protected European Sites around the Braystones is a key determinant in ensuring the integrity of the habitats and dependant species of the protected sites. Poor water quality arising from the build up of heavy metals and salts and from the discharge of toxic compounds (that may also bind to sediments) can lead to mortality in aquatic life and upon those predators that feed upon them (for example bird species). Toxins can accumulate in animals and plants through uptake and ingestion through the food chain and can also increase the vulnerability of species to disease. Moreover changes in water quality such as through nutrient enrichment (eutrophication) can affect the availability of oxygen which can dramatically alter habitat and species compositions, with

direct and indirect detrimental impacts upon dependant species over time. Water abstraction can impact upon habitats and species, as the removal of water from the natural cycle can affect groundwater supply to protected habitats and result in habitat loss and/or degradation.

2.17 The HRA Screening Assessment reviewed the potential for impacts on water resources and quality arising from the construction, operation and decommissioning phases of a new nuclear power station at the nominated site. Issues include:

- increased/ altered drainage from earthworks and excavations and potential sedimentation changes;
- alteration of flow through abstraction and the return of additional water volumes to the aquatic system;
- changes to water temperature creating 'thermal plumes' as a result of controlled discharges;
- the potential for toxic contamination (for example from anti-fouling agents associated with cooling water systems) from accidental leakage may interact or combine with routine non-radioactive or radioactive discharges that will be subject to discharge consents regulated by the Environment Agency.

2.18 Further screening of impacts on these European Sites would also be necessary at the project level should water required for construction (or decommissioning) be derived from freshwater sources.

2.19 Natural England has raised concerns in relation to potential impacts on migratory fish species present as qualifying features of European Sites, which have not been included within the Screening Assessment on account of their distance from the nominated site. These concerns relate to possible impacts arising on Atlantic Salmon, Sea Lamprey and River Lamprey, which occur within the River Eden SAC, the River Ehen SAC and the River Derwent and Bassenthwaite Lake SAC, as a result of water quality impacts associated with discharges into the Irish Sea. Natural England acknowledges that there is little information on the coastal migration routes used by these species. This information gap has been noted and would need to be addressed at the project level to inform the screening process for project level HRA.

2.20 Of the six European Sites screened, four sites are identified as possessing specific vulnerabilities relating to the water resources and quality impacts (Drigg Coast SAC, River Ehen SAC, Wast Water SAC and River Derwent and Bassenthwaite SAC).

Drigg Coast SAC

- 2.21 Drigg Coast SAC is particularly vulnerable to contamination from toxic compounds¹⁶, with the intertidal mudflats and sandflats (and associated saltmarshes) which are primary qualifying features of the SAC acting as sinks for introduced synthetic and non-synthetic compounds. This designated site is approximately 7 km to the south of the nominated site.

River Ehen SAC

- 2.22 River Ehen SAC is particularly vulnerable to water pollution, nutrient enrichment and levels of suspended solids (over 10mg/l) with Freshwater Pearl Mussels and Atlantic Salmon which are primary qualifying features susceptible to these vulnerabilities. These two species are closely inter-linked, the mussel spends its larval or 'glochidal' stage attached to the gills of salmonid fishes and therefore is dependent on the maintenance of the salmon population during a key stage in the species life cycle¹⁷. This designated site lies approximately 5.8km to the north east of the nominated site and the lower reaches of the river are directly adjacent to the nominated site.

Wast Water SAC

- 2.23 Wast Water SAC currently has no known threats which will adversely affect water quality. British Nuclear Fuels Limited abstracts water from the lake but it is not thought that present rates of abstraction affect the lake's special interest. An increase in abstraction levels from this source could lead to vulnerability of the SAC. This designated site lies approximately 13km to the east of the nominated site.

River Derwent and Bassenthwaite Lake SAC

- 2.24 The River Derwent and Bassenthwaite SAC is particularly vulnerable to water pollution, nutrient enrichment, levels of suspended solids (over 10mg/l) and alteration to flow regimes which in turn can affect sedimentation patterns. Fish species including Atlantic Salmon and Sea, Brook and River Lamprey, primary qualifying features of the SAC, are particularly vulnerable to changes in both flow regimes and sedimentation patterns, key elements in providing suitable spawning grounds for these species. This designated site lies approximately 15km to the north of the nominated site.
- 2.25 **The Screening Assessment indicates that there is the potential for significant impacts upon these European Sites and that they should be considered further through Appropriate Assessment to determine the nature and extent of any potential adverse effects identified.**

16 NE observations, Appendix 1: European Site Characterisations.

17 Skinner, A, Young M & Hastie L (2003). *Ecology of the Freshwater Pearl Mussel*. Conserving Natura 2000 Rivers Ecology Series No. 2 English Nature, Peterborough
www.english.nature.org.uk/lifeinukrivers/publications/mussel.pdf

Habitat (and Species) Loss and Fragmentation

European Sites for which no significant effects are likely (see Appendix 3):

- Lake District High Fells SAC
- Borrowdale Woodland Complex SAC
- Wast Water SAC
- River Derwent and Bassenthwaite Lake SAC

European Sites for which significant effects are likely (see below):

- Drigg Coast SAC
- River Ehen SAC

2.26 Habitat loss and fragmentation in relation to European Site integrity can occur naturally (for example, tree fall, changing flow patterns in aquatic systems) or as a result of human intervention. Direct anthropogenic impacts such as through the construction of road and transport infrastructure, land take required by the development and additional required flood / sea defences and infrastructure at the coastal fringe can result in direct habitat and / or species loss and / or fragmentation. Habitat and / or species loss and/or fragmentation can also arise indirectly from construction, such as through the creation of physical and ecological barriers to species migration and dispersal, or changes to nutrient flows and sediment loading regimes. The removed or fragmented habitats cannot be easily re-created.

Drigg Coast SAC

2.27 The Screening Assessment noted the potential for indirect impacts through habitat loss and fragmentation from the construction phase at Braystones. There is potential for habitat loss through construction of cooling water inlets and outlets, coastal defences and a marine landing facility. These proposals could affect sediment flows along the coastline and could change erosion / depositional patterns as a result. This in turn could lead to habitat loss / modification within the Drigg Coast SAC.

River Ehen SAC

2.28 There is potential for obstruction to the passage of migratory fish at the River Ehen. Cooling water inlets and outlets will be required as part of cooling water process. The operation of the power station thus has implications for fish species, including Atlantic Salmon, a primary qualification feature of the River Ehen SAC which could be impacted upon through the impingement of fish on cooling water intake screens and the entrainment of fish and larvae as part of the intake cycle as well as the controlled discharge of abstracted water of increased

temperature¹⁸. Any impact on the Atlantic Salmon also has implications for the Freshwater Pearl Mussel. The mussel spends its larval or 'glochidal' stage attached to the gills of salmonid fishes and therefore is dependent on the maintenance of the salmon population during a key stage in the species life cycle.

- 2.29 **The Screening Assessment indicates that the potential impacts of habitat loss and fragmentation on European Sites conservation objectives and site integrity should be considered further through Appropriate Assessment.**

Coastal Squeeze

European Sites for which no significant effects are likely (see Appendix 3):

- Lake District High Fells SAC
- Borrowdale Woodland Complex SAC
- Wast Water SAC
- River Derwent and Bassenthwaite Lake SAC
- River Ehen SAC

European Sites for which significant effects are likely (see below):

- Drigg Coast SAC

- 2.30 Coastal squeeze impacts are closely related to habitat loss and fragmentation, and relate specifically to situations where the coastal margin is squeezed by the fixed landward boundary. Coastal squeeze typically arises through the development of flood and sea defences but also through the reinforcement of coastal margins using hard engineering (construction works, drainage, infrastructure provision), thereby preventing the natural transport and movement of coastal material, species and habitats.

Drigg Coast SAC

- 2.31 The impacts of coastal squeeze upon the Drigg Coast SAC are unclear, given its distance from the development area proposed for Braystones (7km). However changes to the sediment transport regime arising from the development have the potential to be transferred down the coastline such that designated habitats within the Drigg Coast SAC could be adversely impacted. In particular, mudflat, sand flat and dune system habitats are considered particularly vulnerable to the pressures

¹⁸ British Energy/ Royal Haskoning (Nov, 2008) Proposed Nuclear Development at Hinkley Point: Environmental Scoping Report.

arising from development of the coastal fringes which could thus result in degradation and loss of these habitats.

- 2.32 **The Screening Assessment indicates that the impacts of coastal squeeze should be considered alongside habitat loss and fragmentation through further Appropriate Assessment.**

Air Quality Impacts

European Sites for which no significant effects are likely (see Appendix 3):

- Lake District High Fells SAC
- Borrowdale Woodland Complex SAC
- Wast Water SAC
- River Derwent and Bassenthwaite Lake SAC
- River Ehen SAC

European Sites for which significant effects are likely (see below):

- Drigg Coast SAC

- 2.33 The effects of changing and poor air quality at European Sites vary according to the pollutant type, (acid deposition, ammonia, nitrogen oxides, ozone and sulphur dioxide) and the nature of the receiving environment. The key pollutants that are of concern for terrestrial habitats are sulphur dioxide (SO₂), ammonia (NH₃) and nitrogen oxides (NO_x). Deposition of nitrogen can lead to soil enrichment and sulphur dioxide to acidification; altering the species composition, with impacts on associated species.

- 2.34 Background air quality in the UK has improved progressively and is expected to continue to improve significantly over the next 15 years with tightening emissions standards and moves towards 'cleaner' energy generation. Pollution levels for all key pollutants in the (rural) area around the nominated site provided by the Environment Agency state that emissions to air from major industrial sites in the north west have reduced substantially (although traffic is causing air quality problems in major cities) and that air quality in the north west is improving.

Drigg Coast SAC

- 2.35 The HRA Screening Assessment noted the potential for impacts on air quality at a local level arising from the construction, operation and decommissioning phases of the proposals for the nominated site. These impacts are considered to arise in particular from the construction and decommissioning processes (for example fugitive dust and airborne particulates). Increased traffic generation is also of

concern during the construction phase, and major roads within 200m have the potential to increase nitrogen and carbon emissions impacts from vehicles¹⁹.

- 2.36 The assessment also noted the potential for radioactive releases to the atmosphere, but that regulatory sources indicate aerial (radioactive) emissions to be low and cause little (human) and biodiversity radiation exposure²⁰.
- 2.37 The HRA Screening Assessment identified that the Drigg Coast SAC could be impacted by potential changes to air quality.
- 2.38 **Given the likely construction phase of the development and identified sensitivities of the designated habitats to changes in air quality, the potential for significant effect should be considered further through Appropriate Assessment.**

Conclusions and Recommendations

- 2.39 In line with the screening requirement of the Habitats Directive and Regulations, an assessment was undertaken to determine the likely significant-effects of the development at Braystones on the six European Sites that lie within 20km of the nominated site. The Screening Assessment (**Appendix 3**) and conclusions were informed by:
- The information gathered on the European Sites – **Appendix 1**;
 - Consideration, where necessary, of other plans and programmes that have spatial/ contextual relevance – **Appendix 2**;
 - The summary analysis of potential environmental impacts generated by the development activities arising from Braystones;
 - Government guidance²¹ which indicates that HRA for plans is typically broader and more strategic than project level HRA and that it be undertaken at a level that is proportionate to the available detail of the plan.
- 2.40 The Screening Assessment identified a number of key impacts arising from the nomination and the potential for significant effects at four of the European Sites scoped into the screening process. These findings are summarised in Table 3 below.

¹⁹ Department for Transport (2003) Transport Analysis Guidance, the Local Air Quality Sub-Objective TAG Unit 3.3.3.

²⁰ Environment Agency (2005) Measuring Environmental Performance, Sector Report for the Nuclear Industry.

²¹ Planning for the Protection of European Sites: Appropriate Assessment - Guidance For Regional Spatial Strategies and Local Development Documents, at <http://www.communities.gov.uk/documents/planningandbuilding/pdf/160442.pdf>

Table 3: Summary of Likely Significant Effect Screening

European Sites within 20km of Braystones	Water Resources and Quality	Habitat Loss and Fragmentation/	Coastal Squeeze	Air Quality
Drigg Coast SAC	✓	✓	✓	✓
River Ehen SAC	✓	✓	✗	✗
Wast Water SAC	✓	✗	✗	✗
Lake District High Fells	✗	✗	✗	✗
River Derwent and Bassenthwaite Lake SAC	✓	✗	✗	✗
Borrowdale Woodland SAC	✗	✗	✗	✗

Key		
Likely Significant Effect	✓	further Appropriate Assessment required
No Likely Significant Effect	✗	no further Appropriate Assessment required
Significant Effect Uncertain	?	precautionary approach taken and further Appropriate Assessment required

2.41 It is recommended that the HRA proceeds to the next stage of 'Appropriate Assessment' in relation to the four European Sites where the potential for likely significant effects (✓) or significant effect uncertain (?) has been identified. The next stage of the HRA process is outlined in section 3 of this report.

3 HRA Appropriate Assessment of Braystones

Scoping and Additional Information Gathering

- 3.1 To support the Appropriate Assessment (AA) phase, additional information was gathered on the European Sites and environmental conditions, in line with the specific issues identified by the Screening Assessment. This additional information included, air quality data and trends, available from the UK Air Pollution Information System (APIS) and water quality and abstraction data produced by the Environment Agency.

Assessing the Impacts (in-combination) Appropriate Assessment

- 3.2 The HRA Screening Assessment considered whether the impacts arising from development at Braystones are likely to significantly affect European Sites scoped into the assessment process. The following sections summarise the analysis undertaken to determine whether the development would have an adverse effect on the integrity of the nominated site, either alone or in-combination with other plans, programmes and projects.

Water Resources and Quality

Drigg Coast SAC

River Ehen SAC

Wast Water SAC

River Derwent and Bassenthwaite Lake SAC

- 3.3 Current Environment Agency data²² indicates that, the ecological and chemical statuses of the estuarine environments near to Braystones are not yet assessed. As no Environment Agency assessment has been made to date, predictions for 2015 status have not been made in this report.
- 3.4 The current ecological status assessments for the coastal water quality at Drigg Coast SAC and up and downstream from Braystones are assessed as being 'moderate' and the current chemical quality as 'high'. The Environment Agency predicts that in 2015 the ecological and chemical status will be 'moderate' and 'good' respectively.
- 3.5 The ecological status of the rivers around Braystones, including the Rivers Ehen, Irt and Derwent are assessed as ranging from 'bad' to

22 Environmental Agency – <http://maps.environment.agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=e>

'good' ecological quality. The chemical condition of these rivers is assessed as being of 'pass' quality or 'not yet assessed'. By 2015 the Environment Agency predicts no change to either the ecological status or chemical quality of these Rivers.

- 3.6 Groundwater chemical quality around Braystones is assessed by the Environment Agency as being 'good'. The Environment Agency predicts that in 2015 the chemical quality will also be 'good'.
- 3.7 Radioactive discharges (including potential accidental discharges from waste storage) are subject to authorised limits monitored by the Environment Agency and of the non-radioactive discharges, nitrate contributions are considered to be the most significant (research cited by the Environment Agency in the nuclear sector report²³). In particular it is noted that there can be measurable localised impacts on sea nutrient levels in the vicinity of discharges.
- 3.8 The water resource management unit around Braystones is managed through the Environment Agency CAMS process²⁴. The nominated site is located within the Derwent, west Cumbria and Duddon CAMS and includes a number of watercourses and water bodies designated for their environmental importance including the River Ehen, West Water and the River Derwent and Bassenthwaite SACs. This CAMS area is largely rural, but there are significant industrial water abstractors along the coast. Throughout the area small-scale water abstraction is important for a range of uses including agriculture, hydropower, campsites and private water supply. The largest water abstractions within this CAMS area are from lakes and reservoirs. Water from West Water SAC has been used as the current Sellafield power station water abstraction source. Public water supply for the area is mainly from Crummock Water and Ennerdale, along with a number of smaller reservoirs. Thirlmere is used to supply water locally and elsewhere in the North West.
- 3.9 Currently all Water Resource Management Unit (WRMU) associated with the River Ehen SAC, West Water SAC and River Derwent and Bassenthwaite SAC are classified as 'over licensed' or 'no water available' (with the exception of the Upper Derwent - WRMU 3) with a target status to 2019. Further information provided by the nominator's report indicates water abstraction for cooling water purposes at the nominated site will most likely be sourced from the Irish Sea, as it is unlikely flows within the River Ehen would be sufficient to provide cooling water without significant ecological impact²⁵. However, at this stage it is unclear how the likely short term effect of increased water

23 Measuring Environmental Performance: Sector Report for the Nuclear Industry (Environment Agency, Nov 2005).

24 Environment Agency: Derwent, West Cumbria & Duddon CAMS, <http://www.environment-agency.gov.uk/research/planning/102274.aspx>

25 RWE Siting Study: Braystones Nomination Form Supporting Statement, Arup, March 2009.

demand, particularly during the construction phase, will be met for the development of the nominated site. The potential magnitude and duration of increased water demand will also depend upon the timing of any development of the nominated site in relation to the activities (potential new build, operation or decommissioning) of the nearby Sellafield site.

Effects In-combination with Other Plans, Programmes and Projects

- 3.10 The River Basin Management Plan for the North West outlines what the Environment Agency (under the guidelines of the UK Water Framework Directive) aims to achieve, with regards to improving the water environment, over the next 20 years. The report proposes new strategies and actions under the headings of improving rural land management, reducing the impact of transport and built environments, securing sustainable water sources, improving wildlife habitats and addressing point sources of pollution. Key targets are to ensure the long term improvement of estuarine and coastal areas by 2015, to improve rivers to 27% at good ecological status by the year 2027 and to ensure 60% of groundwater is at good ecological status by 2015.
- 3.11 The Derwent, West Cumbria and Duddon Catchment Abstraction Management Strategy outlines where water is available and where there is a need to reduce current rates of abstraction up to 2019. For the River Ehen SAC, West Water SAC and River Derwent and Bassenthwaite Lake SAC the relevant water resource management units are classified as either 'over licensed' or 'no water available' up to a target status of 2019. Water abstraction is only available at low flows from the Upper Derwent.
- 3.12 The Cumbria Economic Strategy 2009-2019 views opportunities in the energy and the low carbon economy as a strategic priority for the region. Major Projects for west Cumbria to take this forward include the Britain's Energy Coast programme, a £2 billion package of regeneration projects to advance existing strengths in nuclear industry and promote diversification into other forms of low carbon industries such as renewable energy. The presence of at least one new nuclear station within Cumbria is a key component of the programme.
- 3.13 In addition to the Braystones nomination there are three other site nominations for new nuclear power stations situated a short distance south along the coast including at Sellafield, Kirksanton and Heysham . Coastal and inland water European Sites are likely to be affected by nuclear and other energy projects including tidal, wave, biomass and wind farm proposals, the cumulative effects of which could be significant for biodiversity.
- 3.14 In consideration of the above plans, programmes and projects potential in-combination effects on water resources and quality cannot be ruled out for the Drigg Coast SAC, River Ehen SAC, West Water SAC and River Derwent and Bassenthwaite SAC.

- 3.15 **Given the uncertainty over the most likely source of water abstraction and potential impacts on water quality a precautionary principle requires that at the strategic level adverse effects be assumed for the Drigg Coast SAC, River Ehen SAC, West Water SAC and the River Derwent and Bassenthwaite SAC in terms of water resources and quality until greater project level detail (including on technology and mitigation measures) is known.**

Habitat (and species) Loss and Fragmentation

Drigg Coast SAC

River Ehen SAC

- 3.16 Given the potential for habitat loss at Braystones through construction of cooling water culverts, sea defences and a construction-phase marine off-loading facility there are likely significant effects at Drigg Coast SAC. These proposals could affect sediment flows along the coastline and could change erosion / depositional patterns as a result and lead to habitat loss / modification at the SAC.
- 3.17 The North West England and North Wales Shoreline Management Plan²⁶, states wave conditions at the nominated site occur predominantly from the south-west, which results in a net northerly drift of sediment. However, with prevailing tidal conditions to the south-east, the balance of littoral drift is considered sensitive to combinations of storm and tide. It is unclear at this stage what effects may occur in terms of erosion and sediment transport regimes as a result of development along this coastline.
- 3.18 There is also potential for habitat obstruction to the passage of migratory fish from the construction of cooling water culverts that would extend outside of the nominated site boundary. Habitat obstruction at the lower reaches of the River Ehen (which lies immediately adjacent to the nominated site) could impact on Atlantic Salmon (a migratory species) a primary qualification feature of the (upstream) River Ehen SAC. Atlantic Salmon could also be impacted upon through the impingement of fish on cooling water intake screens and the entrainment of fish and larvae as part of the intake cycle. Any impact on the Atlantic Salmon also has implications for the Freshwater Pearl Mussel. The mussel spends its larval or 'glochidal' stage attached to the gills of salmonid fishes and therefore is dependent on the maintenance of the salmon population during a key stage in the species life cycle.

26 North West England and North Wales Shoreline Management Plan, Appendix C: Baseline Process Understanding, Report C2 – General overview of current understanding, Revision 05/12/2008
http://mycoastline.org/index.php?option=com_content&task=view&id=156&Itemid=140

Effects In-combination with Other Plans, Programmes and Projects

- 3.19 Aspects of the following plans and projects could lead to 'in combination' effects on European Sites with regards to water resources and quality (see Appendix 2):
- The Cumbria and Lake District Joint Structure Plan states that housing and employment will be focused at Whitehaven, Workington, Cleator Moor and Egremont, generally away from Natura 2000 sites. However, it is noted that the development and maintenance of coastal defences and the provision of wind farms and tidal/wave power projects have the potential for land take and disturbance/ severance of habitats and species.
 - The Shoreline Management Plan for St Bees Head to Earnse Point states that the development, construction and maintenance of coastal defences may lead to potential for land take and disturbance/ severance of habitats and species.
 - The Cumbria Economic Strategy 2009-2019 views opportunities in the energy and the low carbon economy as a strategic priority. Major Projects for the west Cumbria region to take this forward include the Britain's Energy Coast™ programme, a £2 billion package of regeneration projects to advance existing strengths in nuclear industry and promote diversification into other forms of low carbon industries such as renewable energy. The presence of at least one new nuclear station within Cumbria is a key component of the programme.
 - In addition to the Braystones nomination there are three other site nominations for new nuclear power stations situated a short distance south on the coast including at Sellafield, Kirksanton and Heysham, the cumulative effects of which could be significant for biodiversity.
- 3.20 In consideration of the above plans, programmes and projects in-combination effects on Habitat (and Species) Loss and Fragmentation cannot be ruled out for the Drigg Coast SAC and River Ehen SAC.
- 3.21 **At this strategic stage, where detailed development proposals are unknown a precautionary approach requires that adverse effects be assumed through habitat (and) species fragmentation and loss at Drigg Coast and River Ehen SAC until greater site specific detail (including on technology and mitigation measures) is known.**
- 3.22 **The potential for mitigation measures to effectively address the adverse effects identified is considered further in the avoidance and mitigation section of this report.**

Coastal Squeeze

Drigg Coast SAC

- 3.23 In terms of coastal movement and coastline change overtime the nominated site is evaluated within Unit No.4 of the Shoreline Management Plan 'Pow Beck to Whitriggs Scar'²⁷. Long term predictions observe the coast around the nominated site is expected to remain relatively stable. However, over time (0-100 years) rising sea levels may impact, resulting in observable coastal changes. Thus further extensions of coastal defences along the coastal fringe may be required, leading to potential coastal squeeze and alterations to sediment transport along the coastline.
- 3.24 Given that the proposed requirements and effects of constructing cooling water intake/outfall infrastructure, a marine landing facility and potential sea defences at Braystones is currently unknown, it is not possible to conclude that there will be no adverse effects on the Drigg Coast SAC.

Effects In-combination with Other Plans, Programmes and Projects

- 3.25 Some of the plans considered in paragraph 3.19 are relevant to coastal squeeze effects. Therefore, an in-combination effect on coastal squeeze cannot be ruled out for the Drigg Coast SAC.
- 3.26 **At this strategic stage, where detailed development plans that include the extent of design and build are unknown a precautionary approach requires that adverse effects be assumed through coastal squeeze at the Drigg Coast SAC until greater site specific detail (including on technology and mitigation measures) is known.**
- 3.27 **The potential for mitigation measures to effectively address the adverse effects identified is considered further in the avoidance and mitigation section of this report.**

Air Quality

Drigg Coast SAC

- 3.28 Information provided by the Environment Agency state that emissions to air from major industrial sites in the north west have reduced substantially (but traffic is causing air quality problems in major cities) and that air quality in the north west is improving²⁸.
- 3.29 The Environment Agency assesses that, non-radioactive aerial emissions (sulphur dioxide, nitrogen oxides and volatile organic compounds) from nuclear power stations are extremely low compared with other regulated industries and the Environment Agency does not consider them to be an environmental priority. The Environment Agency's most recent available assessment of radioactive aerial

27 St Bees Head to Earnse Point Shoreline Management Plan Sub-cell 11d: CPU 4; Management Unit No.4 : Pow Beck to Whitriggs Scar <http://www.mycoastline.org/images/pdf/subcell11d/11datlasmu4.pdf>
28 <http://www.environment-agency.gov.uk/research/library/publications/34079.aspx>

emissions for regulated nuclear power stations and specifically for current generation at Braystones indicates that all fall within authorised limits²⁹.

- 3.30 Information provided by the UK Air Pollution Information System³⁰ indicates that air quality measured around Braystones (up to a resolution of 5km) is generally good with pollution levels for all key pollutants (sulphur dioxide, particulates, nitrogen dioxide etc) typically low. However sensitivities and critical loads have been identified for the interest features within the Drigg Coast SAC.
- 3.31 At Drigg Coast SAC current deposition levels for some pollutants are close to or within exceedance level ranges. For both shifting and fixed dune systems current deposition levels for nitrogen when compared to critical loads for these habitats is in exceedance by a range of 10 to 20 kg N/ha/yr. The effects of this eutrophication for fixed and shifting dunes systems result in an increase in tall grasses, decrease in prostrate plants and an increased nitrogen leaching. For shifting dune systems effects can be a biomass increase and increase in nitrogen leaching.

Effects In-combination with Other Plans, Programmes and Projects

- 3.32 The other plans, programmes and plans considered in paragraph 3.19 (with the exception of the Shoreline Management Plan for St Bees Head to Earnse Point) are relevant to air quality effects. In addition, the Cumbria Local Transport Plan states that future road schemes could have potential indirect effects, including air pollution through increased transport movements.
- 3.33 In consideration of the plans, programmes and projects (including the development of other nuclear power stations) an in-combination effect from changes in air quality cannot be ruled out for the Drigg Coast SAC.
- 3.34 **In the context of known air quality conditions and interest feature vulnerabilities and the possibility of cumulative effects from other plans in the local and north west area a precautionary approach requires that at this strategic level, an adverse affect be assumed for the Drigg Coast SAC until greater site specific detail (including on technology and mitigation measures) is known.**
- 3.35 **The potential for mitigation measures to effectively address the adverse effects identified is considered further in the avoidance and mitigation section of this report.**

29 Measuring Environmental Performance: Sector Report for the Nuclear Industry (Environment Agency, Nov 2005).

http://maps.environmentagency.gov.uk/wiyby/queryController?topic=pollution&ep=2ndtierquery&lang=_e&layerGroups=1&x=321000.0&y=145900.0&extraClause=AUTHORISATION_ID~'AF7282'&extraClause=YEAR~2006&textonly=off&latestValue=&latestField=

30 <http://www.apis.ac.uk/>

Avoidance and Mitigation Measures

- 3.36 Avoidance and mitigation measures can apply both at a strategic policy level in the form of policy amendments/caveats, and in more detail at project level, where they are specific measures applicable to the identified issues at individual sites. This HRA is being undertaken at a strategic level where there are development uncertainties regarding the nature, scale and final footprint of the nominated site. These uncertainties limit the capacity of the HRA to reasonably predict the effects on a European Site³¹.
- 3.37 At this strategic stage, the HRA for Braystones can make avoidance and mitigation recommendations in relation to Braystones to inform the strategic siting assessment process and therefore the overall development of the NPS. These recommendations may also subsequently provide guidance to the IPC and potential future developers to ensure that any future development at Braystones takes account of the findings of this strategic level assessment in the more detailed project level HRA.
- 3.38 The HRA recommendations for avoidance and mitigation measures in relation to Braystones are detailed below and in Table 4. Part II of the (main) HRA report also summarises the measures identified in this report alongside those proposed by (other) individual site HRAs.
- 3.39 This HRA is part of an ongoing assessment process that will continue with detailed, project level HRA to be undertaken at development consent stage and informed by detailed information regarding the development plans at Braystones, including consideration of the impact on local defined habitats not covered by the HRA plan process. Should project-specific findings during the undertaking of the project level HRA result in additional impacts arising which cannot be mitigated by the avoidance and mitigation measures recommended here, then changes to the development design may be required to ensure adverse effects on the integrity of the European Sites considered are adequately avoided. This could include changes to the scale and layout of the development, the technology applied, and/or alterations to the site boundary and location at Braystones. Such changes required at the project level should be sufficiently flexible to ensure that all identified impacts are addressed..
- 3.40 Detailed information on the nominated site development and further baseline information regarding important habitats and species will need to be gathered at the site investigation stage. This will help to inform appropriate mitigation at the project level.

31 The key principles and any assumptions made in this plan level HRA of the Nuclear NPS and nominated sites are outlined in Part II of the HRA Report.

Water Resources and Quality

- 3.41 Avoiding adverse effects on surface, ground and estuarine waters is the responsibility of the developer, but is subject to stringent management and regulatory frameworks of the Water Companies (resource planning) and the Environment Agency (abstraction licensing and discharge regulation). For example, thermal discharge quality will need to comply with existing standards or meet the 'no deterioration' standard.
- 3.42 Thermal, radioactive and non-radioactive discharges should go beyond complying with existing standards, with radioactive discharges required to be As Low As Reasonably Achievable (ALARA)³² and that all other discharge levels are required to be an improvement on existing standards. All discharges which lead to adverse effects on the integrity of European Sites should not be permitted. In addition to thermal effects from direct cooling, there are potential water quality issues, in particular nutrient enrichment from anti-fouling agents, which may be associated with the cooling water process.
- 3.43 The IPC, as guided by the NPS, can direct requirements for the efficiency of water use and the protection of water quality to ensure a sustainable water resource is secured to avoid over-burdening the already pressurised freshwater resources of west Cumbria. This may include requiring that management measures relating to supply and discharge (including potential effects on European Sites) take specific account of the sensitivities of the individual receiving environments.
- 3.44 Adverse effects will be effectively mitigated at the site level through suitable design - including use of Sustainable Drainage Systems (SuDS) - and the selection of appropriate construction methods and discharge quality standards.

Habitat (and Species) Loss and Fragmentation/Coastal Squeeze

- 3.45 Where proposals for design and build remain under development, the Nuclear NPS should seek to prioritise, through the guidance it provides to the IPC, the avoidance of direct or indirect habitat impacts that may lead to loss or fragmentation.
- 3.46 In relation to the identified issues at Braystones this should include maintaining the connectivity of wildlife corridors for example through careful design and placement of cooling water intake and outfalls, on migratory fish to the River Ehen SAC and ensuring a sustainable water resource is secured to avoid over-burdening the already pressurised freshwater resources of west Cumbria . This should also include

³² ALARA is not a dose limit; it is a practice that has as its objective the attainment of dose levels as far below applicable limits as possible.

careful design of any sea defences (soft engineering) and marine landing facilities (permeable to sediment movements) to avoid potential effects to the Drigg Coast SAC.

- 3.47 Further studies will be required at project level to determine risks of the development upon the ecological integrity of the European Sites before appropriate mitigation can be determined in full.

Air Quality

- 3.48 Air quality impacts have been assessed as being significant for the Drigg Coast SAC, it is appropriate that the Nuclear NPS takes account of potential air quality impacts through its direction to the IPC. Requirements should include sustainable transport plans including, for example: the use of non-road transport where possible; the phasing of development; and robust monitoring at sites by operators (and the EA as appropriate) to track changes throughout the lifecycle of proposed operations. In particular, the monitoring should account for the potential for cumulative impacts where the phasing between existing power stations and the new build overlaps.

Table 4: Summary of Avoidance and Mitigation Recommendations

Potential Effects	Avoidance and Mitigation Measures – Recommendations for the IPC
Water Resources and Quality	
<ul style="list-style-type: none"> Water Quality 	<ul style="list-style-type: none"> Direct requirements for the protection of water of quality. Ensure that thermal discharges and cooling water intake avoid adverse effects on migratory fish
<ul style="list-style-type: none"> Water Quantity 	<ul style="list-style-type: none"> Ensure sustainable water resource secured to avoid impact on freshwater resources of European Sites Direct requirements for the efficiency of water use. Ensure that volume of cooling water returned to water body is within capacity of immediate receiving environment and does not adversely affect sediment flow
<ul style="list-style-type: none"> Surface and Groundwater Flow 	<ul style="list-style-type: none"> Require suitable design, including use of Sustainable Drainage Systems (SuDs).
Habitat Loss and Fragmentation/ Coastal Squeeze	
<ul style="list-style-type: none"> Direct and Indirect Habitat Loss 	<ul style="list-style-type: none"> Require site layout/ design to avoid or mitigate habitat (and species) losses. Require sensitive design for all coastal defence structures and marine landing facilities which are permeable to sediment flows along the coast Require additional habitat creation to replace any lost habitats and to maintain connectivity of wildlife corridors around nominated site.
<ul style="list-style-type: none"> Loss of Surrounding Habitat (construction of associated infrastructure) 	<ul style="list-style-type: none"> Require ecological mitigation and management plan.
<ul style="list-style-type: none"> Barriers to migration and dispersal of fish populations 	<ul style="list-style-type: none"> Protection measures should be incorporated into water intake/outfall systems so as to avoid impacts on migratory fish populations.
Air Quality	
<ul style="list-style-type: none"> Emissions arising from Construction, Operation and Decommissioning 	<ul style="list-style-type: none"> Require sustainable transport plans including, for example: the use of non-road transport where possible; the phasing of development; and robust monitoring by operators at sites to track changes throughout the lifecycle of operations. Promote the use of carbon-efficient forms of transport and construction during the power station lifecycle.

Summary of HRA Findings and Recommendations

- 3.49 The HRA Screening Assessment identified the likely significant effects on four of the European Sites as a result of impacts that may arise from the development of a new nuclear power station at the nominated site. These effects were assessed further through the AA stage of the HRA which considered: European Site data; available environmental condition data; and the potential effects of other plans ‘in-combination’; in coming to a conclusion on the likelihood that the development of the nominated site will have adverse effects on European Site integrity.
- 3.50 Based on HRA experience, professional judgement, and the consultation advice received from the Statutory Consultees, it is reasonable to conclude that the suggested measures may be sufficient to avoid and/ or mitigate the adverse effects on the integrity of European Sites identified. However, the effectiveness of the measures proposed can only be ascertained with certainty through HRA at a project level, where the specific details of developments and primary data sources will be available
- 3.51 The conclusions of the HRA are limited by the strategic nature of the assessment process and the information available, which does not allow for a definitive prediction of effects on the European Sites considered. A precautionary approach suggests that AA at this strategic level cannot rule out the potential for adverse effects on four European Sites identified through the screening stage through impacts on water resources and quality, habitat/species loss and fragmentation, coastal squeeze and air quality (see Table 5).

Table 5: Summary of Appropriate Assessment

Potential Effects Arising from Development	European Sites at which adverse effects cannot be ruled out
Water resources and quality	<ul style="list-style-type: none"> • Drigg Coast SAC • River Ehen SAC • Wast Water SAC • River Derwent and Bassenthwaite Lake SAC
Habitat (and species) loss and fragmentation	<ul style="list-style-type: none"> • Drigg Coast SAC • River Ehen SAC
Coastal squeeze	<ul style="list-style-type: none"> • Drigg Coast SAC
Air quality	<ul style="list-style-type: none"> • Drigg Coast SAC

- 3.52 To address the uncertainties inherent in a strategic level HRA, the AA has proposed a suite of avoidance and mitigation measures to be considered as part of the project level HRA (Table 4). At this stage, it

is assessed that the effective implementation of these strategic mitigation measures may help to address the identified adverse effects on European Site integrity, but that more detailed project level HRA is required in order to draw conclusions on their efficacy.

- 3.53 **Further assessment supported by detailed data at project level is therefore required to determine whether nuclear power development at this nominated site could be undertaken without adversely affecting the integrity of European Sites near Braystones.**
- 3.54 **Only at the project level HRA can a conclusion of no adverse effect on site integrity be made with any confidence.**

Glossary

AA	Appropriate Assessment
AoS	Appraisal of Sustainability
APIS	UK Air Pollution Information System
DECC	Department for Energy and Climate Change
CAMS	Catchment Abstraction Management Strategy
CCW	Countryside Council for Wales
CHaMPs	Coastal Habitat Management Plans
cSAC	Candidate Special Area of Conservation
EA	Environment Agency
EIA	Environmental Impact Assessment
HRA	Habitats Regulations Assessment
ICZM	Integrated Coastal Zone Management
IPC	Infrastructure Planning Commission
LA	Local Authority
LDF	Local Development Framework
LSE	Likely Significant Effect
LTP	Local Transport Plan
NE	Natural England
NH ₃	Ammonia
N2K	Natura 2000 sites
NO _x	Nitrogen Oxide
NPS	National Policy Statement
PPP	Plans, Programmes and Projects
pSPA	Potential Special Protection Area
Ramsar	Wetland Sites designated by the Ramsar Convention
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SO ₂	Sulphur Dioxide
SPA	Special Protection Area
SSA	Strategic Siting Assessment
SSSI	Site of Special Scientific Interest

SuDS	Sustainable Drainage Systems
WRMU	Water Resource Management Unit

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