



BERWICK BANK WIND FARM ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Volume 2, Chapter 21: Major Accidents and
Disasters



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21. MAJOR ACCIDENTS AND DISASTERS

21.1. INTRODUCTION

1. This chapter of the Offshore Environmental Impact Assessment (EIA) Report presents the assessment of the likely significant effects (as per the “EIA Regulations”) on the environment of the Berwick Bank Wind Farm offshore infrastructure which is the subject of this application (hereafter referred to as “the Proposed Development”) on the vulnerability of the Proposed Development to risks of major accidents and disasters. Specifically, this chapter considers the potential impacts of the Proposed Development seaward of Mean High Water Springs (MHWS) during the construction, operation and maintenance, and decommissioning phases.
2. Likely significant effect is a term used in both the “EIA Regulations” and the Habitat Regulations. Reference to likely significant effect in this Offshore EIA Report refers to “likely significant effect” as used by the “EIA Regulations”. This Offshore EIA Report is accompanied by a Report to Inform Appropriate Assessment (RIAA) which uses the term as defined by the Habitats Regulations Appraisal (HRA) Regulations.
3. The assessment presented is informed by the following technical chapters:
 - volume 1, chapter 3: Project Description;
 - volume 2, chapter 12: Commercial Fisheries;
 - volume 2, chapter 13: Shipping and Navigation;
 - volume 2, chapter 14: Aviation, Military, Communications; and
 - volume 2, chapter 17: Infrastructure and Other Users.
4. The structure of the Major Accidents and Disasters Offshore EIA Report chapter deviates from the structure of other chapters included within the Offshore EIA Report as the assessment is guided by the Institute of Environmental Management and Assessment (IEMA) ‘Major Accidents and Disasters in EIA: A Primer’ guidance (IEMA, 2020).
5. This guidance defines a major accident as an event that threatens immediate or delayed serious environmental effects to human health, welfare, and/or the environment. Additionally, major accidents can be caused by disasters resulting from both man-made and natural hazards. A disaster can therefore be an external hazard (an act of terrorism) or a natural hazard (an earthquake) with the potential to cause an even and/or situation that meets the definition of a major accident.

21.2. PURPOSE OF THIS CHAPTER

6. The primary purpose of the Offshore EIA Report is outlined in volume 1, chapter 1. It is intended that the Offshore EIA Report will provide the Scottish Ministers, statutory and non-statutory stakeholders, with sufficient information to determine the likely significant effects of the Proposed Development on the receiving environment.
7. This Major Accidents and Disasters Offshore EIA Report chapter:
 - presents the existing environmental baseline established from desk studies, site-specific surveys and consultation with stakeholders;
 - identifies any assumptions and limitations encountered in compiling the environmental information;
 - presents the likely significant environmental effects deriving from the vulnerability of the Proposed Development to risks of major accidents and disasters, based on the information gathered and the analysis and assessments undertaken;

- highlights any necessary monitoring and/or mitigation measures which are recommended to prevent, minimise, reduce or offset the likely significant adverse environmental effects of the Proposed Development on major accidents and disasters.

21.3. POLICY AND LEGISLATIVE CONTEXT

8. Policy and legislation on offshore renewable energy infrastructure is presented in volume 1, chapter 2 of the Offshore EIA Report. Policy and legislation specifically in relation to major accidents and disasters are provided in Table 21.1, with a list of the national planning policy relevant to the assessment of the effects on major accidents and disasters receptors set out in Table 21.2.

Table 21.1: Legislation Relevant to Major Accidents and Disasters

Legislation Description	Relevance to Major Accidents and Disasters Assessment and How Addressed in this Offshore EIA Report
EIA Regulations	
The EIA Regulations require that the effects of a project, where these are likely to have a significant effect on the environment, are taken into account in the decision-making process for that project.	For example, Regulation 5 (2) of the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 outlines receptors that “ <i>The environmental impact assessment must identify, describe and assess in an appropriate manner, in light of the circumstances relating to the proposed works, the direct and indirect significant effects of the proposed works on the factors specified in paragraph (3) and the interaction between those factors.</i> ”
The EIA Regulations indicate the process and requirements for the provision of adequate environmental information to enable the EIA process.	Regulation 5 (4) outlines the requirement to “ <i>include the expected effects deriving from the vulnerability of the works to risks, so far as relevant to the works, of major accidents and disasters.</i> ”
	This chapter contains a high level description of the types of potential major accident and disaster which could occur and the processes which ensure there are only negligible effects arising from major accidents and disasters, which are not significant in EIA terms.
Health and Safety at Work etc. Act 1974 (HSWA) and Regulations Made Thereunder	
The HSWA is the primary legislative instrument covering workplace health and safety in Great Britain. The HSWA establishes various obligations to ensure, so far as is reasonably practicable, that persons are not exposed to risks to their health and safety. The Health and Safety Executive (HSE), along with local authorities, are responsible for enforcing the Act.	Several regulations made under the Act place general duties on employers to assess risks and to implement controls. The overriding principle is that foreseeable risks to persons shall be reduced so far as is reasonably practicable and that adequate evidence shall be produced to demonstrate that this has been done. These regulations are applicable to various elements of the Proposed Development.
	This chapter demonstrates that the Proposed Development has suitable processes in place to reduce risks to persons to as low as reasonably practicable (ALARP) and complies with good risk management practice. Both the Control of Major Accident Hazard Regulations 2015 and The Major Off-Site Emergency Plan (Management of Waste from Extractive Industries) (England and Wales) Regulations 2009 are made under HSWA. While neither set of regulations applies to the Proposed Development, any external sites which do will be considered within this chapter. This also applies to other regulations such as The Major Accident Control Regulations (enacted through DSA03.OME Part 4 aka JSP 498), The Planning (Hazardous Substances) Regulation 2015, The Explosives Regulation 2015, and the Pipelines Safety Regulations 1996.
Construction (Design and Management) (CDM) 2015 Regulations	
The CDM Regulations place specific duties on developers, designers and contractors, so that health and safety is considered throughout the life of a project from its inception to its	The CDM Regulations expand upon the requirements of the HSWA to apply specific requirements for construction projects.
	The measures explained in this chapter demonstrate how the Proposed Development will achieve the requirements and intention of the CDM Regulations, which include management of construction risk to ALARP.

Legislation Description	Relevance to Major Accidents and Disasters Assessment and How Addressed in this Offshore EIA Report
subsequent final decommissioning.	
They include the requirement to appoint a Principal Designer and Principal Contractor to co-ordinate health and safety aspects during construction. Under the CDM Regulations, designers must avoid foreseeable risks so far as reasonably practicable by: eliminating hazards from the construction, cleaning, maintenance, and proposed use and demolition of a structure; reducing risks from any remaining hazard; and giving collective safety measures priority over individual measures.	

Summary of Relevant Policy Framework	How Considered in the Offshore EIA Report
	The MPS also confirms that the level of assessment undertaken for any project should be proportionate to the scale and potential impact of the project, as well as the sensitivity of the environment concerned and in accordance with the EIA Directive, where applicable.
National Planning Framework (NPF 3)	Considers potential impacts from renewable energy along with mitigation measures.
	When considering potential benefits and adverse effects, decision makers should also consider any cumulative impacts of the proposals with other projects and activities.

21.4. CONSULTATION

9. A summary of the key issues raised during consultation activities undertaken to date specific to major accidents and disasters is presented in Table 21.3, together with how these issues have been considered in the production of this Major Accidents and Disasters Offshore EIA Report chapter. Further detail is presented within volume 1, chapter 5.

Table 21.2: National Planning Policy Relevant to Major Accidents and Disasters

Summary of Relevant Policy Framework	How Considered in the Offshore EIA Report
Scottish National Marine Plan (NMP)	
Sets out strategic policies for the sustainable development of Scotland's marine resources and is compatible with the United Kingdom (UK) National Policy Statement (NPS) and existing Marine Plans across the UK	The NMP is relevant to the Proposed Development as it addresses the potential for interactions between renewable energy development and other marine users. It also sets several minimum requirements including: <ul style="list-style-type: none"> • achieving a sustainable marine economy; • ensuring a strong, healthy and just society; • living within environmental limits; • promoting good governance; and • using sound science responsibly.
UK Marine Policy Statement (MPS)	
Provides a framework for marine spatial planning, specifically for the preparation of Marine Plans and to ensure that marine resources are used in a sustainable way	The MPS confirms that all public authorities, in examining and determining applications for all energy infrastructure, the relevant marine policy statement must be followed, and the following must be considered: <ul style="list-style-type: none"> • the national level of need for energy infrastructure; • the positive wider environmental, societal and economic benefits of low carbon electricity generation; • that renewable energy resources can only be exploited where the resource exists and where economically feasible; and • the potential for inward investment on energy related manufacturing and deployment activity and employment opportunities and regeneration of local national economies, supporting the objective of developing the UK's low carbon manufacturing capability.

Table 21.3: Summary of Key Consultation Issues Raised During Consultation Activities Undertaken for the Proposed Development Relevant to Major Accidents and Disasters

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
February 2022	Berwick Bank Wind Farm Scoping Opinion (MS-LOT, 2022).	MS-LOT request for the Offshore EIA Report to include a description and assessment of the likely significant effects deriving from the vulnerability of the Proposed Development to major accidents and disasters.	This Offshore EIA Report chapter has been developed as per request from MS-LOT for the Offshore EIA Report to include a description and assessment of the likely significant effects deriving from the vulnerability of the Proposed Development to major accidents and disasters.
February 2022	Berwick Bank Wind Farm Scoping Opinion (MS-LOT, 2022).	MS-LOT request for the appropriate guidance such as the IEMA 'Major Accidents and Disasters in EIA: A Primer' to present the likelihood of an occurrence and the Proposed Development's susceptibility to potential major accidents and hazards.	This Offshore EIA Report chapter has been developed as per IEMA guidance 'Major Accidents and Disasters in EIA: A Primer'.
February 2022	Berwick Bank Wind Farm Scoping Opinion (MS-LOT, 2022).	MS-LOT request that the assessment must detail how significance has been defined and detail the	This Offshore EIA Report chapter has been developed as per IEMA guidance 'Major Accidents and Disasters in EIA:

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
		inclusions and exclusions within the assessment. Any mitigation measures that will be employed to prevent, reduce or control significant effects should be included in the Offshore EIA Report.	A Primer', therefore does not follow the assessment approach followed in other Offshore EIA Report chapters. However, this Offshore EIA Report chapter presents an approach to assessment in line with relevant guidance including the consideration of designed in measures to reduce / control risk (See section 21.7).

21.5. METHODOLOGY TO INFORM BASELINE

21.5.1. DESKTOP STUDY

- The baseline presented for major accidents and disasters is based on a summary of the information collected through a detailed desktop review of existing studies and datasets for the following chapters:
 - volume 2, chapter 12: Commercial Fisheries;
 - volume 2, chapter 13: Shipping and Navigation;
 - volume 2, chapter 14: Aviation, Military, Communications; and
 - volume 2, chapter 17: Infrastructure and Other Users.
- The designed in mitigation measures are summarised in Table 21.4. A detailed overview of the desktop sources is presented in each of the above chapters, with a summary being provided in this chapter.

21.5.2. SITE-SPECIFIC SURVEYS

- No specific site-specific surveys have been undertaken to inform the EIA for major accidents and disasters. This is because receptor information and data related to this topic can be readily collected through desktop study and consultation with relevant stakeholders, with suitable data throughout the Forth and Tay Region being currently available.
- Furthermore, the baseline presented in this chapter has been informed by the site-specific surveys undertaken for the shipping and navigation chapter (volume 2, chapter 13).
- A detailed overview of the methodology of the shipping and navigation site-specific surveys for the Proposed Development is presented in volume 2, chapter 13. A summary of the results is provided in paragraph 20 of this chapter.

21.6. BASELINE ENVIRONMENT

21.6.1. OVERVIEW OF BASELINE ENVIRONMENT

- This section provides an overview of the baseline environment relevant to major accidents and disasters including offshore energy projects, offshore cables and pipelines, carbon capture, natural gas storage and underground gasification, oil and gas, commercial fisheries, civil and military aviation and shipping and navigation. It is recognised that the study areas for these different baseline topics differ as they relate to different receptors with varying ranges for which impacts must be considered. However, notwithstanding these differences all relevant study areas are appropriate for this assessment. The summaries presented within this section are based on the detailed baseline environments presented within the following chapters:

- Berwick Bank Wind Farm Offshore Scoping Report (SSER, 2021a).
- volume 2, chapter 10: Marine Mammals;
- volume 2, chapter 12: Commercial Fisheries;
- volume 2, chapter 13: Shipping and Navigation;
- volume 2, chapter 14: Aviation, Military, Communications; and
- volume 2, chapter 17: Infrastructure and Other Users.

Commercial fisheries

- This section provides an overview of the commercial fisheries in proximity to the Proposed Development, as described in volume 2, chapter 12.
- Demersal trawling for *Nephrops* concentrates in inshore areas of the commercial fisheries study area, predominantly within the 6 nm limit, including in areas that overlap with the Proposed Development export cable corridor. However, within the Proposed Development array area, negligible levels of trawling for *Nephrops* generally occur.
- Creeling, targeting lobster and crab, is undertaken at higher levels in inshore areas of the commercial fisheries study area. Although at relatively lower level, considerable activity by local creelers has also been reported in areas further offshore, including the Proposed Development array area, particularly around its north-western section.
- Scallop dredging by vessels over 15 m in length (typically nomadic vessels) is undertaken at moderate levels within the Proposed Development array area, being predominantly concentrated in its north-western section. The level of activity recorded within the Proposed Development is however relatively low compared to that recorded in other grounds around Scotland and the UK that are targeted by the nomadic scallop fleet.

Shipping and navigation

- This section provides an overview of the shipping and navigation activity in proximity to the Proposed Development, as described in volume 2, chapter 13.
- During the summer vessel traffic survey an average of 14 unique vessels per day were recorded within 10 nm of the Proposed Development array area, with the main vessel types being tankers (34%), cargo vessels (30%) and commercial fishing vessels (18%). During the winter vessel traffic survey an average of 16 unique vessels per day were recorded within 10 nm of the Proposed Development array area, with the main vessel types being cargo vessels (36%), tankers (32%) and commercial fishing vessels (16%). Although, passenger vessels were not present in the vessel traffic surveys, an analysis of long term vessel

traffic data indicated an average of one unique passenger vessel every two days within 10 nm of the Proposed Development array area, with this discrepancy attributed to the COVID-19 pandemic and confirmed during consultation.

22. From desktop studies, key navigational features were identified including other offshore wind farms, ports and related services and aids to navigation. In particular, there are four other large scale offshore wind farm developments within the Outer Firth of Forth: Seagreen 1 (located 2.1 nm to the north and under construction), Inch Cape (located 2.1 nm to the west and consented), Neart na Gaoithe (NnG) (located 7.8 nm to the west and under construction) and Seagreen 1A (located 2.7 nm to the west and consented).

Aviation, military and communications

23. This section provides an overview of the aviation, military and communications activity in proximity to the Proposed Development, as described in volume 2, chapter 14.
24. The Proposed Development is situated in an area of Class G uncontrolled airspace which is established from the surface up to Flight Level (FL) 115 (11,500 ft) which is the base of Airway P18 which is Class D controlled airspace. Airway P18 is primarily used by commercial aircraft routing to, and from, Aberdeen Airport. The airway is active from FL 115 (11,500 ft) to FL 195 (19,500 ft) in the north-west section of the Proposed Development and from FL 155 (15,500 ft) to FL 195 (19,500 ft) in the south-west section. The north-eastern portion of the Proposed Development overlaps the lateral boundaries of Danger Areas D613C and D613D. These Danger Areas are activated periodically from FL 100 (10,000 ft) to FL 660 (66,000 ft) for military air combat training and supersonic flight.
25. Within Class G and D airspace, the following Air Traffic Control (ATC) rules apply:
- Class G airspace - any aircraft can operate in this area of uncontrolled airspace without any mandatory requirement to be in communication with, or receive a radar service from, any ATC unit. Pilots of aircraft operating under Visual Flight Rules (VFR) in Class G airspace are ultimately responsible for seeing and avoiding other aircraft and obstructions; and
 - Class D airspace is established from FL 115 (11,500 ft) to FL 195 (19,500 ft). All aircraft operating in this airspace must be in receipt of an air traffic service from National Air Traffic Services En-Route PLC (NERL) or military controllers located at the NERL Area Control Centre.
26. An overview of the baseline presented in volume 2, chapter 14 is provided below:
- Military aviation: Ministry of Defence (MoD) Leuchars Station is located approximately 30.9 nm (57.22 km) to the south-west of the Proposed Development. Located at Leuchars Station is an ATC radar which is used to provide navigational services to aircraft inbound to and outbound from the aerodrome. In addition, Leuchars Station is responsible for navigational services to transitory military and civil aircraft operating within a 40 nm radius of the aerodrome, up to 9,500 ft. The Deadwater Fell ATC radar is located at Spadeadam is approximately 59.6 nm (110.5 km) to the south-west of the Proposed Development.
 - Civil aviation: NERL operate two ATC radars to the north north-west of the Proposed Development; Perwinnes ATC radar at approximately 46 nm (85 km) and Allanshill ATC radar at approximately 74 nm (137 km). These radars are used to support civilian ATC radar and en route operations for aircraft operating on civilian air routes and for aircraft arriving and departing to/from Aberdeen Airport.

Offshore energy projects, offshore cables, pipelines and subsea communications infrastructure

27. This section provides an overview of the offshore energy projects and offshore cables in proximity to the Proposed Development, as described in volume 2, chapter 17.
28. The closest offshore wind farm projects to the Proposed Development array area are the NnG offshore wind farm (under construction), Inch Cape offshore wind farm (consented), the Seagreen 1 offshore wind

farm (under construction), Seagreen 1A Project (consented) and the Seagreen 1A Export Cable Corridor (consented). There are two planned subsea cables within the vicinity of the Proposed Development array area and export cable corridor (Eastern Link 1 and Eastern Link 2). In the nearshore region, the Proposed Development export cable corridor also crosses the export cable corridor for the NnG offshore wind farm (crossing will take place approximately 4 km offshore).

29. The Firth of Forth supports oil and gas activities such as those associated with the Grangemouth refinery, oil storage and tanker terminals. However, there are currently no active licence blocks located within or near the Proposed Development.
30. There are several overlaps of non-active licence blocks with the Proposed Development array area, namely blocks 25/20, 26/16, 26/17, 26/18, 26/21, 26/22, 26/23, 26/24, 26/27, 26/28 and 26/29. The closest active licence block, Block 27/9 - North Sea Natural Resources Ltd, is located approximately 68 km from the Proposed Development array area and 84.6 km from the Proposed Development export cable corridor.
31. The closest pipeline (Everest to Teeside (Cats Trunkline) gas pipeline) is located approximately 102 km from the Proposed Development array area.
32. There are no wave and tidal projects, aggregate extraction sites, active disposal sites, or carbon capture, natural gas storage areas, active and disused subsea cables and pipelines identified within the boundary of the Proposed Development.

Unexploded Ordnance sites

33. This section provides an overview of Unexploded Ordnance (UXO) in proximity to the Proposed Development, as described in volume 1, chapter 3.
34. It is possible that UXO originating from World War I or World War II may be encountered during the construction or installation of offshore infrastructure, which poses a health and safety risk where it coincides with the planned location of infrastructure and associated vessel activity.
- Where it is not possible to avoid or relocate a UXO, the preferred method for UXO clearance is for a low order technique (subsonic combustion). Based on existing knowledge of the area (using information gathered from Seagreen 1, it has been assumed that there may be up to 14 UXO which require clearance. The majority are anticipated to be cleared by a low order technique (such as deflagration), however 10% of all clearance events may result in high order detonation (see volume 2, chapter 10).
35. The unplanned detonation of UXO has the potential to generate some of the highest peak sound pressures of all anthropogenic underwater sound sources (von Benda-Beckman *et al.*, 2015), and are considered a high energy, impulsive sound source. The potential impacts of this activity will depend on noise source characteristics, the receptor species, distance from the sound source and noise attenuation within the environment. However, temporary loss in hearing is reversible and therefore not considered likely to lead to any long term effects on the individual and only a small proportion of respective populations could be potentially injured.

21.6.2. FUTURE BASELINE SCENARIO

36. The EIA Regulations require that “a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without development as far as natural changes from the baseline scenario can be assessed with reasonable effort, on the basis of the availability of environmental information and scientific knowledge” is included within the Offshore EIA Report.

37. In the event that the Proposed Development does not come forward, an assessment of the future baseline conditions has been carried out and is described within this section.

Offshore energy projects, offshore cables, pipelines and subsea communications infrastructure

38. There is potential for significant growth in offshore wind energy within Scotland, with the Scottish Government setting out plans to increase offshore wind capacity to 11 GW of energy installed by 2030. There are a number of sites along the coast of Scotland with operational offshore wind developments, another 4.9 GW of consented projects (Scottish Sectoral Marine Plan, 2020; Offshore Wind Scotland, 2021), and up to an additional up to 25 GW projects in the concept/early planning stage as part of the ScotWind leasing round (The Crown Estate, 2022).
39. Oil and gas are vital to Scotland and were responsible for nearly 90% of the country's primary energy in 2015 (Scottish Government, 2021). Although the sector is seen as a critical and integral component to the economy, support for oil and gas programs moving forward will be conditional on the sector's actions to facilitate sustainable energy transitions for the future (Scottish Government, 2021). Therefore, the baseline environment for oil and gas activity in the vicinity of the Proposed Development is uncertain.
40. The future baseline scenario for offshore cables, carbon capture storage, natural gas storage and underground coal gasification is subject to gradual change as new projects and/or sites are further identified.

Shipping and navigation

41. In relation to the current shipping and navigation baseline, it is anticipated that commercial vessel traffic will navigate around Inch Cape if and when construction commences as it does for NnG and Seagreen. It is assumed that alternative routes will typically maintain a minimum mean distance of 1 nm from future wind farm structures in line with industry good practice.
42. In terms of changes to vessel traffic volumes, two independent scenarios of potential growth in commercial vessel movements of 10% and 20% are estimated. These are considered conservative assumptions given that from consultation with Forth Ports there are no terminal or berth changes are planned which may affect vessel traffic in the future. Additionally, there are no commercial ferry routes planned.

Aviation, military and communications

43. As aviation stakeholders assess impacts on a case-by-case basis and in chronological order, for aviation, military and communications, there are no future baseline environment changes expected to affect the Proposed Development.

Commercial fisheries

44. As described in volume 3, section 12.7, demersal trawling for *Nephrops* and squid, creeling for lobster and crab and scallop dredging are the main fishing activities that take place in the commercial fisheries study area. These are all well-established fisheries with well-defined fishing grounds, particularly in the case of the *Nephrops* and the scallop fishery, given the substrate requirements of the target species. Therefore, in general terms, the main fishing grounds could be expected to remain consistent in the future.
45. In addition, the implementation of fisheries management measures within Marine Protected Areas (MPAs) such as spatial closures for certain fishing methods may affect the future distribution and levels of fishing activity in the commercial fisheries study area. More information on these management measures is provided in volume 3, appendix 12.1.

46. Over time, global climate change will result in changes to the marine environment, including on fish and shellfish populations of commercial importance. This could result in modifications to commercial fisheries practices in response to changes in species distribution, abundance and/or seasonal trends. In addition, changes in other factors such as, fishing gear methods and efficiency, fisheries legislation and regulations, including changes associated with the UK exit from the EU, or changes in the market may also influence the baseline. At this stage, it is not possible however to predict what these changes (e.g., climate change, changes in the fishing industry, UK exit from the EU etc.) may entail and how they may affect activities within the commercial fisheries study area therefore it has been assumed that the current baseline assessment presented reflects the future baseline scenario also.

Natural hazards and climate system

47. The future baseline for major accidents and disasters will evolve along a number of factors over the Proposed Development lifecycle.
48. Climate change is predicted to lead to a number of changes including: an increase in peak rainfall intensities and resulting flood flows over time, with wetter winters and drier warmer summers; a rise in sea level. It is anticipated that there will be an increased frequency of lightning strikes and wind gusts. Climate change is expected to alter the prevalence of extreme weather conditions which could lead to disaster during different project phases (e.g. increased wind gusts impacting the construction phase or increased lightning strike frequency increasing risks during the operation and maintenance phase).
49. The magnitude of changes brought about by climate change is uncertain, but UK climate projections (UK CP18) are available until the end of the 21st century. The anticipated impact of climate change on environmental conditions is considered in volume 3, appendix 21. The effects of climate change on anticipated weather conditions within the construction phase are anticipated to be minimal.
50. There could be changes in land or water use in the surrounding environment; water use and climate change factors could impact the local ecology and associated environmental designations. These changes are anticipated to be gradual in nature and as there is minimal potential for major accidents during the all project phases, this is unlikely to have a significant impact.
51. Substantial development of technology during the lifetime of the Proposed Development is anticipated. This could include advances in power generation, power transmission, and decommissioning/maintenance techniques. These may reduce the risk posed to safety and the environment further. However, changes in technology may also introduce new hazards that would need to be managed at the appropriate time and through the appropriate process.
52. The framework in place is based upon risk assessment and risk management principles which are flexible and adaptable to changing context and environmental factors but will ensure that the risk of major accidents and disasters is reduced as low as reasonably practicable.
53. Other potential extreme natural hazards such as earthquakes, volcanoes, tsunamis, etc. are not relevant to the baseline hazard conditions in the vicinity of the Proposed Development.

21.6.3. DATA LIMITATIONS

54. The data sources used in this chapter are based on the existing studies, datasets and limitations presented within the following chapters:
- volume 2, chapter 10: Marine Mammals;
 - volume 2, chapter 12: Commercial Fisheries;
 - volume 2, chapter 13: Shipping and Navigation;
 - volume 2, chapter 14: Aviation, Military, Communications;

- volume 2, chapter 17: Infrastructure and Other Users; and
- volume 3, appendix 21: Climate Assessments Report.

55. The data presented are the most up to date publicly available information which can be obtained from the applicable data sources as cited in the relevant chapters. The data are therefore limited by what is available and by what has been made available, at the time of writing the Offshore EIA Report. It is considered that the data employed in the assessment are robust and sufficient for the purposes of the assessment of effects presented.

21.7. METHODOLOGY FOR ASSESSMENT OF EFFECTS

21.7.1. OVERVIEW

56. The major accidents and disasters assessment of effects has followed the methodology set out in the following guidance:
- Major Accidents and Disasters in EIA: A Primer (Institute of Environmental Management & Assessment (IEMA), September 2020).
57. This approach directs the assessment to focus on low likelihood but potentially high consequence events such as a major spill, explosion, fire, etc. Smaller incidents (spills, sediment loss, etc.) are addressed elsewhere in the Offshore EIA Report in the relevant topic chapters and this chapter therefore focuses on major events only.
58. The approach to assessment in this chapter includes three steps: screening, scoping and assessment. The screening stage identifies if a development has a vulnerability to major accidents and/or disasters and to consider whether a development could lead to a significant effect. The scoping stage is to determine in more detail whether there is potential for significant effects as a result of major accidents and/or disasters associated with a development. The assessment stage provides further understanding on the likelihood of a risk event occurring and identifies the requirement for further mitigation.
59. In addition, the major accidents and disasters assessment of effects has considered the legislative framework as defined by Health and Safety at Work, etc Act 1974 and its relevant statutory provisions, although it should be noted that under Great Britain's health and safety legislation, HSE does not have a role in examining risk or hazard assessments unless the circumstances are covered by specific regulations.

21.8. MEASURES ADOPTED AS PART OF THE PROPOSED DEVELOPMENT

60. As part of the project design process, a number of measures have been proposed to reduce the potential for impacts within the following chapters (outlined in Table 21.4):
- volume 2, chapter 10: Marine Mammals;
 - volume 2, chapter 12: Commercial Fisheries;
 - volume 2, chapter 13: Shipping and Navigation;
 - volume 2, chapter 14: Aviation, Military, Communications;
 - volume 2, chapter 17: Infrastructure and Other Users; and
 - volume 3, appendix 21: Climate Assessments Report.
61. As there is a commitment to implementing these measures described within each chapter listed above, they are considered inherently part of the design of the Proposed Development and have therefore been considered in the assessment presented in section 21.9. These measures are considered standard industry practice for this type of development.

Table 21.4: Designed In Measures Adopted as Part of the Proposed Development

Designed in Measures Adopted as Part of the Proposed Development	Justification
Marine Mammals (volume 2, chapter 10, table 10.21)	
Detonation of UXO using low order techniques.	Low order techniques will be adopted where practicable to reduce risks of injury to marine mammals. This measure will also prevent the uncontrolled detonation of UXO, in particular during the construction phase and the effects of this in terms of major accidents and disasters.
Commercial Fisheries (volume 2, chapter 12, table 12.9)	
A Navigational Safety Plan and Vessel Management Plan (NSPVMP) (volume 4, appendix 25) will provide the details of the vessel management and navigational safety of the Proposed Development and mitigate the impact of project vessels and the navigational risk to other legitimate users of the sea. Under the NSPVMP, the Applicant will ensure that details of the Proposed Development are promulgated in the Kingfisher fortnightly bulletins, as soon as reasonably practicable prior to the commencement of construction of the Proposed Development to inform the commercial fishing industry of vessels routes, timing and locations of construction works, and relevant details the construction activities. Record hazards such as subsea cables	Facilitates awareness and helps minimising disturbance to fishing activities. timely and efficient distribution of Notice to Mariners (NtM), Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.
Compliance of all project vessels with international marine regulations as adopted by the Flag State, notably the International Regulations for Preventing Collisions at Sea (COLREG) and SOLAS	Minimises the risk introduced due to the presence of project vessels.
Lighting and marking of the Proposed Development array area in agreement with the Northern Lighthouse Board (NLB and in line with IALA G1162 (IALA, 2021)).	Maximises awareness of the Proposed Development both in day and night conditions including in restricted visibility and assists with Search and Rescue (SAR operations).
Appropriate marking of structures (both within the Proposed Development array area and export cable corridor) on United Kingdom Hydrographic Office (UKHO) Admiralty Charts.	Maximises awareness of the Proposed Development allowing vessels to passage plan in advance.
Cables will be buried to a minimum depth of 0.5 m where reasonably practicable. Where cable burial target depths are not met cable protection will be used.	Minimises potential interactions e.g. snagging risk between fishing gear and cables.
Undertaking of post-lay and burial inspection surveys and, where appropriate and practicable, undertaking of rectification works.	Facilitates co-existence and prevents potential damage to and from fishing gear and minimises potential safety risks.
Undertaking of assessments to determine cable burial status (including cable protection) and identify potential changes to seabed conditions. Findings would be shared with the fishing industry to discuss requirements for any further surveys.	Facilitates co-existence and prevents potential damage to and from fishing gear and minimises potential safety risks.
Shipping and Navigation (volume 2, chapter 13, table 13.15)	
Application for Safety Zones up to 500 m around structures where vessels are undertaking construction work during construction and periods of major maintenance and 50 m around partially completed or completed but not yet fully commissioned surface piercing structures during construction.	Protects third-party vessels from project vessels involved in construction and major maintenance activities which may be Restricted in their Ability to Manoeuvre (RAM).
Deployment of a buoyed construction area in agreement with the NLB.	Protects third-party vessels from project vessels involved in construction and major maintenance activities which may be RAM.
Suitable implementation and monitoring of cable protection (via burial, or external protection where adequate burial depth as identified via risk assessment is not feasible) with any damage, destruction or decay of	Minimises the risks of underwater allision with cable protection, anchor or fishing gear interaction with

Designed in Measures Adopted as Part of the Proposed Development	Justification
cables notified to the MCA, NLB, Kingfisher and UKHO no later than 24 hours after discovered.	subsea cables and interference with magnetic position fixing equipment.
Compliance with MGN 654 and its annexes (in particular SAR annex 5 (MCA, 2021) and completion of a SAR checklist) where applicable.	Ensures the final array layout is suitable for SAR operations and that reductions in under keel clearance are acceptable.
Use of guard vessel(s) as required by risk assessment.	Maximises awareness of temporary hazards.
Layout finalised through the Development Specification and Layout Plan (DSLPL) via consultation with the MCA and NLB.	Ensures the final array layout is suitable for both surface and air based (for SAR purposes) navigation.
Lighting and marking of the Proposed Development array area in agreement with the NLB and in line with IALA G1162 (IALA, 2021).	Maximises awareness of the Proposed Development in both day and night conditions including in restricted visibility and assists with SAR operations.
Marine coordination and communication to manage project vessel movements.	Ensures project vessels are suitably managed to minimise the likelihood of involvement in incidents and maximise the ability to assist in the event of a third-party incident.
Appropriate marking of structures (both within the Proposed Development array area and export cable corridor) on UKHO Admiralty Charts.	Maximises awareness of the Proposed Development allowing vessels to passage plan in advance.
Minimum blade clearance of 22 m above MHWS (in line with Royal Yachting Association (RYA) policy (RYA, 2019).	Minimises the risk of blade allision particularly for sailing vessels with a mast, noting that the minimum blade clearance will be 37 m above Lowest Astronomical Tide (LAT).
Compliance of all project vessels with international marine regulations as adopted by the Flag State, notably the COLREGs (IMO, 1972/77) and Safety of Life at Sea (SOLAS) (IMO, 1974).	Minimises the risk introduced due to the presence of project vessels.
Promulgation of information for vessel routes, timings and locations, Safety Zones and advisory safe passing distances as required via Kingfisher Bulletins.	Maximises awareness of the Proposed Development allowing vessels to passage plan in advance.
Aviation, Military and Communications (volume 2, chapter 14, table 14.11)	
Adherence to CAA (2016). <i>CAP 393, Air Navigation: The Order and the Regulations (2016)</i> . This will require approval and implementation of a Lighting and Marking Plan (LMP) which will set out specific requirements in terms of aviation lighting to be installed on the wind turbines. The LMP will be prepared in consultation with the CAA, MoD and Maritime and Coastguard Agency (MCA) and will take into account requirements for aviation lighting as specified in Article 223 of the UK Air Navigation Order (ANO), 2016 and changes to International Civil Aviation Organisation (ICAO) Annex 14 Volume 2, Chapter 6, paragraph 6.2.4 promulgated in November 2016.	To comply with CAA (2016). <i>CAP 393, Air Navigation: The Order and the Regulations (2016)</i> which sets out the mandatory requirements for the lighting of offshore wind turbines, and to ensure appropriate lighting is in place to facilitate aeronautical safety. 1. An outline LMP is provided with the Application (see volume 4, appendix 22).
All structures of more than 91.4 m in height will be charted on aeronautical charts and reported to the Defence Geographic Centre (DGC) which maintains the UK's database of tall structures (Digital Vertical Obstruction File) at least ten weeks prior to construction. Furthermore, any temporary obstacles associated with wind farms which are of more than 91.4 m in height (e.g. construction infrastructure such as cranes and/or meteorological masts) are to be alerted to aircrews by means of the Notice to Airmen (NOTAM) system.	An object which is more than 91.4 m in height is considered to have significance for the en-route operations of aircraft in UK airspace and represent a collision risk.
CAA will be informed of the locations, heights and lighting status of the wind turbines, including estimated and actual dates of construction and the maximum heights of any construction equipment to be used, prior to the start of construction, to allow inclusion on aviation charts and in the UK Aeronautical Information Publication.	To comply with CAA (2016): CAP 764 - CAA Policy and Guidelines on Wind Turbines (Version 6, February 2016) which requires the CAA to be notified of the construction and location of wind turbines, enabling the sharing of this information with aviators thus reducing collision risk.

Designed in Measures Adopted as Part of the Proposed Development	Justification
Infrastructure and Other Users (volume 2, chapter 17, table 17.10)	
Application and use of Safety Zones during construction, operation and maintenance, and decommissioning activities associated with wind turbines and offshore platforms.	In the interests of safety to infrastructure and other users receptors.
Timely and efficient distribution of NtM, Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.	In the interests of safety to infrastructure and other users receptors.
Crossing or laying of cables over or adjacent to known or future cables will be subject to crossing and/or proximity agreements.	In the interests of safety to infrastructure and other users receptors and to ensure construction and potential maintenance works being undertaken to agreed design specification and standards e.g. at crossings with NnG cables.
Promulgation of information and crossing and/or proximity agreements regarding restricted access to NnG infrastructure.	The construction of offshore export cables and implementation of safety distances around vessels may affect or restrict access to existing cables. Likewise, maintenance and decommissioning activities may also restrict access.
Presence of 500 m construction safety zones around structures undergoing installation and 50 m advisory safety zones around all structures until the point of commissioning. Advisory clearance distances of up to 500 m in radius around installation vessels.	In the interests of safety to infrastructure and other users receptors.
Advisory clearance distances along vulnerable sections of cables (i.e. cables waiting burial or protection).	
Additional mitigation specific to Major Accidents and Disasters	
Preparation of an Emergency Response Co-Operation Plan (ERCoP)	Preparation of an ERCoP which will set out the process and procedures to be implemented in the event of a major accident or emergency occurring during construction, operation and maintenance or decommissioning phases of the Proposed Development. The plan will be prepared in consultation with key stakeholders including MS-LOT, the MCA (with respect to SAR) and the CAA with respect to aviation.
UXO Risk Assessment	In addition to using low order techniques, all UXO detonation will be subject to a risk assessment completed in accordance with relevant guidance including PUB C754 Assessment and management of unexploded ordnance (UXO) risk in the marine environment (Construction Industry Research and Information Association (CIRIA), 2015)

21.9. ASSESSMENT

21.9.1. IDENTIFICATION AND SCREENING

62. Following the guidance outlined within IEMA (2020) and given the location of the Proposed Development, the Proposed Development has a vulnerability to major accidents and/or disasters and therefore this has been screened into assessment included in this Offshore EIA Report.

63. Although there are a significant number of designed in measures in place, a full assessment of the vulnerability of the Proposed Development to risks of major accidents and disasters has been undertaken with consideration given to the potential for the Proposed Development to result in a major accident or disaster.

21.9.2. SCOPING

64. The scoping stage determines whether there is potential for significant effects as a result of major accidents and/or disasters associated with a development considering the designed in measures. The scoping stage identifies whether accidents or disasters should be scoped in or out of the assessment stage for the Proposed Development.

65. Table 21.5 outlines the scoping of the vulnerability of the Proposed Development to the baseline anthropogenic and biogenic sources of hazards which have potential for significant adverse impact.

Table 21.5: Scoping of Vulnerability of the Proposed Development to Existing Accidents and Disasters

Source of Hazard	Scoping In			Scoped out	Justification
	C	O	D		
Collision risk – Shipping and Navigation	✓	✓	✓		Potential for collision risk from existing shipping and navigation impacting on the construction, operation and maintenance and decommissioning of the Proposed Development (volume 2, chapter 13).
Collision risk – Aviation		✓			Potential for collision risk from existing aviation in the area impacting on the operation and maintenance of the Proposed Development (volume 2, chapter 14).
Snagging risk – Commercial Fisheries	✓	✓	✓		Potential for snagging risk from existing commercial fisheries impacting on the construction, operation and maintenance and decommissioning of the Proposed Development (volume 2, chapter 12).
Risk of accident – Oil and Gas infrastructure				✓	No potential identified for a major accident or disaster related to oil and gas infrastructure to significantly impact on the construction, operation and maintenance or decommissioning of the Proposed Development as no physical overlap is identified, resulting in no impact pathway (volume 2, chapter 17).
Risk of accident – Cables and pipelines				✓	No potential identified for a major accident or disaster related to cables pipelines to significantly impact on the construction, operation and maintenance or decommissioning of the Proposed Development as no physical overlap is identified, resulting in no impact pathway (volume 2, chapter 17).
Temperature changes				✓	No potential identified for a major accident or disaster related to temperature change to significantly impact on the construction, operation and maintenance or decommissioning of the Proposed Development (volume 3, appendix 21).
Precipitation changes				✓	No potential identified for a major accident or disaster related to precipitation change to significantly impact on the construction, operation and maintenance or decommissioning of the Proposed Development (volume 3, appendix 21).
Sea level rise and storm surge				✓	No potential identified for a major accident or disaster related to sea level rise to significantly impact on the construction, operation and maintenance or decommissioning of the Proposed Development (volume 3, appendix 21).
Extreme weather				✓	No potential identified for a major accident or disaster related extreme weather to significantly impact on the construction, operation and maintenance or decommissioning of the Proposed Development (volume 3, appendix 21).

66. In addition to the existing baseline pressures, the Proposed Development will introduce additional pressures that may give rise to the potential for accidents to impact on the receiving environment, these

are listed in Table 21.6. As before, each pressure is assessed individually and scoped in/out of further assessment and a justification for scoping is provided.

67. The Proposed Development includes designed in measures adopted as part of the Proposed Development that will reduce the potential for any accidents during construction, operation and maintenance and decommissioning. These are outlined in Table 21.4.

Table 21.6: Scoping of Vulnerability of the Proposed Development to Cause Accidents and Disasters

Source of Hazard	Scoping In			Scoped out	Justification
	C	O	D		
Physical impacts (collision, allision)	✓	✓	✓		During all stages of the Proposed Development there is potential for collision/allision involving the vessels associated with the Proposed Development (volume 2, chapter 13).
UXOs	✓				During the construction phase there is potential for UXOs to be encountered, e.g. during piling or cable laying operations (volume 1, Chapter 3 and volume 2, chapter 10).
Pollution of the marine environment (vessels)	✓	✓	✓		During all stages of the Proposed Development there is potential for pollution of the marine environment resulting from the vessels associated with the Proposed Development (volume 2, chapter 13).
Pollution of the marine environment (structures)		✓			During all stages of the Proposed Development there is potential for pollution of the marine environment resulting from the offshore structures associated with the Proposed Development.
Fire at wind turbine/Offshore Substation Platforms (OSPs)/Offshore convertor station platforms	✓	✓	✓		During all stages of the Proposed Development there is potential for fire at a wind turbine or the OSPs/Offshore convertor station platforms.
Snagging risk – Commercial Fisheries	✓	✓	✓		Potential of snagging risk to existing commercial fisheries in the area impacting from the operation of the Proposed Development (volume 2, chapter 12).
Collision risk – Aviation		✓			Potential of collision risk to existing aviation in the area impacting from the operation of the Proposed Development (volume 2, chapter 14).

21.9.3. ASSESSMENT

68. Following the guidance outlined within IEMA (2020), all scoped in risk events have been assessed, both in terms of the Proposed Developments potential vulnerability to existing major accident and/or disasters and in terms of its potential to cause accidents/disasters. Multidiscipline impacts, designed in control measures and the potential requirement of additional control measures are considered in assessing whether each potential risk event is being managed to an acceptable level.

69. Table 21.7 details the assessment of the vulnerability of and potential for the Proposed Development to be impacted or cause major accidents and/or disasters.

Table 21.7: Assessment of Vulnerability of and Potential for the Proposed Development to be Impacted or Cause Accidents and/or Disasters

Risk Event	Source and/or Pathways	Receptor(s)	Source Document	Reasonable Worst Consequence if Event Did Occur	Are Cross Disciplinary Impacts Likely?	Designed in/Control Measures	Could this Reasonably ¹ Lead to a Major Accident and/or Natural Disaster with Existing Control Measures in Place?	Is the Reasonable Worst Consequence Managed to an Acceptable Level with Existing Control Measures in Place?	If no, What Secondary Control Measures are Required to Reach an Acceptable Level?
Vulnerability of the Proposed Development to Existing Accidents/Disasters									
Collision and allision risk –Shipping and Navigation	<u>Source:</u> Other vessels <u>Pathway:</u> overlapping marine environment	Project vessels and infrastructure	Volume 2, chapter 13	Severe damage to vessel/s, personal injury, and loss of fuel/cargo inventory to marine environment	Yes – inventory loss could result in impact to various marine disciplines	As detailed in Table 21.4: Shipping and Navigation ERCoP	No	Yes	Not required
Collision risk – Aviation	<u>Source:</u> Low flying aircraft <u>Pathway:</u> airspace in project area	Project surface infrastructure (wind turbines)	Volume 2, chapter 14	Severe damage to wind turbines	No	As detailed in Table 21.4: Aviation, Military, Communications ERCoP	No	Yes	Not required
Snagging risk – Commercial Fisheries	<u>Source:</u> Commercial fishing vessels <u>Pathway:</u> overlapping marine environment	Project subsea infrastructure	Volume 2, chapter 12	Severing of cable connection, damage to cable	No	As detailed in Table 21.4: Commercial Fisheries	No	Yes	Not required
UXO	<u>Source:</u> ordnance detonation <u>Pathway:</u> North Sea	Project personnel, vessels and infrastructure	Volume 1, chapter 3 Volume 2, chapter 10	Injury to personnel during UXO detonation	No	Should UXOs be identified within the Proposed Development which require detonation specific procedures and risk assessments will be undertaken to mitigate risk to personnel and infrastructure. ERCoP	No	Yes	Not required
Potential for the Proposed Development to Cause Accidents/Disasters									
Collision and allision risk –Shipping and Navigation	<u>Source:</u> project vessels / infrastructure <u>Pathway:</u> North Sea	Other vessels	Volume 2, chapter 13	Severe damage to or loss of vessel and loss of fuel/cargo inventory to marine environment	No	As detailed in Table 21.4: Shipping and Navigation ERCoP	No	Yes	Not required
UXO	<u>Source:</u> ordnance detonation <u>Pathway:</u> North Sea	Marine mammals Fish and shellfish Benthic ecology	Volume 2, chapter 10	Injury and disturbance to marine mammals, fish and shellfish and benthic ecology from elevated underwater noise during UXO detonation	Yes - Injury and disturbance to marine mammals, fish and shellfish and benthic ecology	As detailed in Table 21.4: Marine mammals ERCoP	No	Yes	Not required

¹ The reasonable worst-case scenario anticipated, considering the likely severity and duration. A reasonable worst-case scenario is the worst plausible, not most likely, manifestation of the risk in question.

Risk Event	Source and/or Pathways	Receptor(s)	Source Document	Reasonable Worst Consequence if Event Did Occur	Are Cross Disciplinary Impacts Likely?	Designed in/Control Measures	Could this Reasonably ¹ Lead to a Major Accident and/or Natural Disaster with Existing Control Measures in Place?	Is the Reasonable Worst Consequence Managed to an Acceptable Level with Existing Control Measures in Place?	If no, What Secondary Control Measures are Required to Reach an Acceptable Level?
Operation and maintenance phase – Pollution of the marine environment (vessels)	<u>Source:</u> project vessels <u>Pathway:</u> North Sea	Marine mammals Fish and shellfish Benthic ecology water quality	Volume 2, chapter 13	Severe damage to vessel and loss of fuel / cargo inventory to marine environment	Yes – inventory loss could result in impact to various marine disciplines	As detailed in Table 21.4: Shipping and Navigation, alongside adherence to the Environmental Management Plan (EMP) (volume 4, appendix 22) and Marine Pollution Contingency Plan (MPCP) (volume 4, appendix 22, annex 22.2) ERCoP	No	Yes	Not required
Operation and maintenance phase - Pollution of the marine environment (structures)	<u>Source:</u> project infrastructure (e.g. wind turbines, OSPs/Offshore convertor station platforms) <u>Pathway:</u> North Sea	Marine mammals Fish and shellfish Benthic ecology water quality	Volume 2, chapter 19	Short term, localised impact to water quality	Yes – inventory loss could result in impacts to marine life and water quality	As detailed in Table 21.4: Infrastructure and Other Sea Users alongside adherence to the EMP and MPCP. ERCoP	No	Yes	Not required
Operation and maintenance phase – Fire at wind turbines or OSP/Offshore convertor station platforms	<u>Source:</u> OSP/Offshore convertor station platform fire <u>Pathway:</u> North Sea and atmosphere	Water quality Air quality	Volume 2, chapter 19 Berwick Bank Wind Farm Offshore Scoping Report (SSER, 2021a).	Short term, localised impact to water quality. Measurable atmospheric emissions	Yes – fire could result in impacts to air and water quality	All potential offshore air quality impacts were scoped out of further assessment (SSER, 2021a). ERCoP	No	Yes	Not required
Collision risk – Aviation	<u>Source:</u> Project infrastructure (wind turbines) <u>Pathway:</u> airspace in project area	Low flying aircraft	Volume 2, chapter 14	Loss of single aircraft, loss of life and damage to project infrastructure	No	As detailed in Table 21.4: Aviation, Military, Communications ERCoP	No	Yes	Not required
Snagging risk – Commercial Fisheries	<u>Source:</u> Proposed Development subsea infrastructure <u>Pathway:</u> overlapping marine environment	Commercial fishing vessels	Volume 2, chapter 12	Severe damage to / loss of fishing equipment and personal injury	No	As detailed in Table 21.4: Commercial Fisheries	No	Yes	Not required

21.10. CUMULATIVE TRANSBOUNDARY AND INTERRELATED EFFECTS ASSESSMENT

70. As it has been concluded that the project will not reasonably lead to a major accident or disaster after consideration of the designed in measures adopted, no assessment of cumulative, inter-related or transboundary effects has been undertaken.

21.11. CONCLUSION

71. Information on major accidents and disasters was collected through a desktop review of the following chapters (and the Berwick Bank Wind Farm Offshore Scoping Report) to establish the baseline for offshore energy projects, offshore cables and pipelines, carbon capture, natural gas storage and underground gasification, oil and gas, commercial fisheries, civil and military aviation, shipping and navigation and UXO:
- Berwick Bank Wind Farm Offshore Scoping Report (SSER, 2021 a).
 - volume 2, chapter 10: Marine Mammals;
 - volume 2, chapter 12: Commercial Fisheries;
 - volume 2, chapter 13: Shipping and Navigation;
 - volume 2, chapter 14: Aviation, Military, Communications; and
 - volume 2, chapter 17: Infrastructure and Other Users.
72. Table 21.7 details the assessment of the vulnerability of and potential for the Proposed Development to be impacted or cause major accidents and/or disasters. It was found that all reasonable worst consequences will be managed to an acceptable level with existing control measures in place.
73. As no reasonable major accidents and disasters risk events were identified, no cumulative, transboundary or interrelated effects assessment was required.

21.12. REFERENCES

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