

Volume 2, Chapter 28

Major accidents and disasters



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28. Major accidents and disasters

28.1 Introduction

28.1.1 In the Scoping Report (RED, 2020), it was proposed to scope out Major Accidents and Disasters (MA&Ds) from consideration in the Environmental Impact Assessment (EIA). However, in the Scoping Opinion the Planning Inspectorate (PINS) requested that the Environmental Statement (ES) contains a description and, if required, assessment of any likely significant effects of MA&Ds (please refer to **Table 28-3** which sets out relevant comments of the PINS Scoping Opinion).

28.1.2 This chapter of the Preliminary Environmental Information Report (PEIR) presents a description of potential major accidents and disasters and the processes and measures which will be implemented to ensure there will be no significant effects arising from major accidents and disasters. It should be read in conjunction with the project description provided in **Chapter 4: The Proposed Development** and the relevant parts of the following chapters:

- **Chapter 13: Shipping and navigation** (due to potential impacts on shipping);
- **Chapter 14: Nature conservation** (due to the identification of conservation sites);
- **Chapter 15: Civil and military aviation** (due to the potential for aviation incidents involving the Proposed Development);
- **Chapter 23: Terrestrial ecology and nature conservation** (due to the identification of ecological receptors);
- **Chapter 24: Transport** (due to consideration of highway safety during all project phases);
- **Chapter 26: Historic environment** (due to identification of sites of historical importance);
- **Chapter 27: Water environment** (due to consideration of flood risk); and
- **Appendix 5.2: Greenhouse gas assessment, Volume 4** (due to potential future hazards that may arise from change in climate).

28.1.3 This chapter describes:

- the legislation, planning policy and other documentation that has informed this chapter (**Section 28.2: Relevant legislation, planning policy, and information and guidance**);
- the outcome of consultation and engagement that has been undertaken to date, including how matters relating to major accidents and disasters within the Scoping Opinion received in August 2020 have been addressed (**Section 28.3: Consultation and engagement**);
- the scope of the major accidents and disasters and PEIR chapter (**Section 28.4: Scope of the major accidents and disasters PEIR chapter**);

- the methods used for the baseline data gathering (**Section 28.5: Methodology for baseline data gathering**);
- the overall baseline (**Section 28.6: Baseline conditions**);
- embedded environmental measures relevant to major accidents and disasters and the relevant maximum design scenario (**Section 28.7: Basis for the major accidents and disasters PEIR chapter**);
- the approach used for the PEIR (**Section 28.8: Approach for the major accidents and disasters PEIR chapter**);
- the major accidents and disasters description of effects (**Section 28.9 - 28.11: Description of effects**);
- an outline of further work to be undertaken for the ES (**Section 28.12: Further work to be undertaken for ES**);
- a glossary of terms and abbreviations is provided in **Section 28.13: Glossary of terms and abbreviations**; and
- a references list is provided in **Section 28.14: References**.

28.1.4 In the context of EIA for major accidents and disasters, the following definitions have been applied:

- a **major accident** is defined as an unintended event caused by a man-made activity or asset that leads to serious damage to receptors, either immediate or delayed;
- a **disaster** is defined as a natural occurrence that leads to serious damage to receptors, either immediate or delayed;
- **serious damage to human populations** is harm which would be considered substantial i.e. death(s), multiple serious injuries or a substantial number requiring medical attention; and
- **serious damage to the environment** is loss or significant detriment to populations of species or organisms, valued sites (including designated sites), valued cultural heritage sites (with lower thresholds for high-value or protected species or sites), contamination of drinking water supplies, ground or groundwater, or harm to environmental receptors.

28.1.5 These definitions are drawn from other UK legislation, regulation and supporting technical guidance for the purpose of assessing major accidents in the UK, such as the Control of Major Accident Hazards (COMAH) Regulations (HSE, 2015) but have been adapted for use in EIA. Further details are provided in **Section 28.2**.

28.1.6 For the purposes of EIA, the 'effect' of a major accident or disaster is the risk of such an event arising, thus;

"A risk is the likelihood that a hazard will actually cause its adverse effects, together with a measure of the effect. It is a two-part concept and you have to have both parts to make sense of it." (HSE, 2001a).

- 28.1.7 A significant effect resulting from a major accident or disaster is therefore the risk of a major accident or natural disaster occurring which would be intolerable, and for which consent should not be given without further risk reduction.

28.2 Relevant legislation, policy and other information and guidance

Introduction

- 28.2.1 This section identifies the legislation, policy and other documentation that has informed the assessment of effects with respect to major accidents and disasters. Further information on policies relevant to the EIA and their status is provided in **Chapter 2: Policy and legislative context** of this PEIR.

Legislation and national planning policy

- 28.2.2 **Table 28-1** lists the legislation relevant to the assessment of the effects on major accidents and disasters receptors.

Table 28-1 Legislation relevant to major accidents and disasters

Legislation description	Relevance to assessment
Infrastructure Planning (Environmental Impact Assessment) Regulations 2017	
The EIA Regulations 2017 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. The EIA Regulations 2017 indicate the process and requirements for the provision of adequate environmental information to enable the EIA process. Regulation 5 outlines the requirements of the EIA process.	<p>Regulation 5 (2) outlines receptors that “<i>The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development</i>” and this includes major accidents and disasters.</p> <p>Regulation 5 (4) outlines the requirement to “<i>include, where relevant, the expected significant effects arising from the vulnerability of the proposed development to major accidents or disasters that are relevant to that development.</i>”</p> <p>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 no significant effects arising from major accidents and disasters.</p>
Health and Safety at Work etc. Act 1974 (HSWA) and regulations made thereunder	

Legislation description

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.

Relevance to assessment

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 will demonstrate that the Proposed Development has suitable processes in place to ensure that their legal duty to reduce as low as reasonably practicable (ALARP) and comply with good practice risk management.

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 clients, designers and contractors, so that health and safety is considered throughout the life of a construction project from its inception to its subsequent final demolition and removal.

They include the requirement to appoint a Principal Designer and Principal Contractor

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,

Legislation description	Relevance to assessment
<p>to co-ordinate health and safety aspects during construction.</p> <p>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.</p>	<p>which include management of construction risk to ALARP.</p>

28.2.3 **Table 28-2** lists the national planning policy relevant to the assessment of the effects on major accidents and disasters receptors.

Table 28-2 National planning policy relevant to major accidents and disasters

Policy description	Relevance to assessment
Overarching National Policy Statement (NPS) for Energy (NPS EN-1)	
<p>Overarching NPS for Energy (NPS EN-1) sets out the Government’s policy for delivering major energy infrastructure.</p>	<p>Rampion 2 falls under NPS EN-1 and relevance to the assessment is addressed below.</p> <p>Part 4.11 outline the safety that the “HSE is responsible for enforcing a range of occupational health and safety legislation some of which is relevant to the construction, operation and decommissioning of energy infrastructure. Applicants should consult with the Health and Safety Executive (HSE) on matters relating to safety”.</p> <p>A description of the consultation which has taken place and is further proposed is described in Section 28.3.</p> <p>Section 28.7 describes the measures by which Rampion Extension Development (RED) will ensure compliance with all matters relating to major accidents and disasters, many of which are covered by the occupational health and safety legislation enforced by HSE.</p>



Policy description	Relevance to assessment
	As the inclusion of major accidents and disasters in the EIA occurred after the issue of this NPS there are no specific policy tests for major accidents. The NPS does have generic relevant requirements for 'Good Design'.
NPS for Renewable Energy (NPS EN-3)	
NPS EN-3 for Renewable Energy sets out guidance and requirements for nationally significant energy infrastructure projects.	As the inclusion of major accidents and disasters in the EIA occurred after the issue of this NPS there are no specific policy tests for major accidents. The NPS does however refer to the 'Good Design' requirements of NPS EN-1.
NPS for Electricity Networks Infrastructure (NPS EN-5)	
NPS EN-5 for Electricity Networks Infrastructure sets out the primary basis for decisions taken by the Secretary of State (SoS) on applications for electricity networks infrastructure. It states that subsea and underground cables, along with associated infrastructure may be subject to the Planning Act 2008 for which consent is sought through an application for a Development Consent Order (DCO) along with the main nationally significant infrastructure project (NSIP) infrastructure, such as a generating station.	As the inclusion of major accidents and disasters in the EIA occurred after the issue of this NPS, there are no specific policy tests for major accidents. The NPS does however refer to the 'Good Design' requirements of NPS EN-1.
South Inshore and South Offshore Marine Plan (Department for Environment, Food and Rural Affairs (DEFRA), 2018)	
The South Inshore and South Offshore Marine Plan safeguards the marine environment. This plan covers from Folkestone in Kent to the River Dart in Devon.	The marine plan for the area does not include any specific policy tests for major accidents and disasters, however, there are general commitments to minimise the harm to marine receptors.

Local planning policy

28.2.4 There are no relevant local planning policies for major accidents and disasters.

Other relevant information and guidance

28.2.5 A summary of other information and guidance relevant to the assessment undertaken for major accidents and disasters is provided here:

- *Environmental Impact Assessment of Projects, Guidance on the Preparation of the Environmental Impact Assessment Report* (European Commission, 2017) – Guidance on how to develop a good quality environmental impact report to ensure appropriate information is available for decision making purposes. Section 1.3.3 of the document relates to the impacts of major accidents and disasters and outlines key considerations including the use of risk-based significance criteria.
- *Guidelines for Environmental Risk Assessment and Management Green Leaves III* (Department for Environment, Fisheries and Rural Affairs [Defra], 2011). The guidance has been used to inform the development of the assessment methodology. In particular, the source-pathway-receptor model has been adopted.
- *Environmental Risk Tolerability for COMAH establishments* (Chemical and Downstream Oil Industries Forum [CDOIF], 2016). This guidance, on the assessment of harm and tolerability of major accidents to the environment, has been established in relation to COMAH sites. The guidance informs the thresholds of a major accident for environmental receptors (building on the Department for Environment Transport and the Regions (DETR) guidance listed below).
- *Chapter 4 Local responder risk assessment duty, Revision to Emergency Preparedness* (Cabinet Office, 2012). The guidance sets out requirements for risk assessment of emergencies (which include major accidents and disasters) by Local Resilience Forums (LRFs). It has been used to inform the harm criteria for human receptors.
- *Guidance on the Interpretation of Major Accidents to the Environment for the purposes of COMAH Regulations* (DETR, 1999). The guidance informs the thresholds of a major accident for environmental receptors.
- *Planning Inspectorate's Advice Note 11 Annex G – The Health and Safety Executive* (Planning Inspectorate, 2017). The Advice Note describes role of the HSE in Land Use Planning and Nationally Significant Infrastructure Projects in relation to major accident and disasters. Specifically, the Advice Note refers to requirements of the Land Use Planning process and Control of Major Accident Hazards (COMAH), as well as stating that HSE will not generally review risk assessments undertaken the support HSWA.
- *Reducing Risks Protecting People (R2P2)* (HSE, 2001b). The guidance describes the basis and criteria on which the HSE's decision making process is based. The tolerability criteria for risk to people set out in R2P2, including the aversion for large numbers of casualties resulting from single incidents, have been used to derive the qualitative criteria for assessing the significance of effects on people arising from major accidents and disasters.
- *Major Accidents and Disasters in EIA: A Primer* (Institute of Environmental Management and Assessment, 2020). This guidance provides several

approaches which are considered to represent good practice in MA&D assessment. It provides example definitions and considerations which are broadly aligned to those used in this chapter.

28.3 Consultation and engagement

Overview

28.3.1 This section describes the outcome of, and response to, the Scoping Opinion in relation to major accidents and disasters.

Scoping Opinion

28.3.2 RED submitted a Scoping Report (RED, 2020) and request for a Scoping Opinion to the SoS (administered by PINS) on 2 July 2020. A Scoping Opinion was received on 11 August 2020 (Planning Inspectorate, 2020a). The Scoping Report set out to scope out the major accidents and disasters assessment. **Table 28-3** sets out the comments received in the PINS Scoping Opinion and how these have been addressed in this PEIR. A full list of the PINS Scoping Opinion comments and responses is provided in **Appendix 5.1: Response to the Scoping Opinion, Volume 4**. Regard has also been given to other stakeholder comments that were received in relation to the Scoping Report.

28.3.3 It is worth noting that only three stakeholders commented specifically on major accidents and disasters, and none of them explicitly objected to the scoping out of major accidents and disasters:

- West Sussex County Council (WSCC) stated that major accidents and disasters did not require a standalone assessment chapter.
- Public Health England (PHE) stated that they expected the potential hazards and the risk management measures to be included within the ES. These items are given consideration in **Section 28.9** to **28.11** and **Section 28.7**. PHE also stated that the COMAH Regulations (HSE, 2015) and Major Accident Off-Site Emergency Plan (Management of Waste from Extractive Industries) (England and Wales) Regulations (2009) should be considered within the ES. These legislations are discussed in **Section 28.6**, although it should be noted that no part of the Proposed Development will be subject to these legislations.
- The HSE provided information related to three Major Accident Hazard sites and pipelines but provided limited further comment. The HSE response in the Scoping Opinion (Planning Inspectorate, 2020) relates to the larger area encompassed by Scoping Boundary¹ upon which the Scoping Report (RED, 2020) is based and therefore coverage is for a larger area than that covered by

¹ The Scoping Boundary is illustrated in Figure 1.1 of the Scoping Report (RED, 2020) and the onshore part of the Scoping Boundary was approximately 2km wide along the cable corridor including a 1km buffer either side of the previous indicative potential cable centreline. It was also approximately 5.7km wide in the area being considered for the onshore substation.

the onshore part of the PEIR Assessment Boundary. Major Accident Hazard sites store, process or transport hazardous substances such as chemicals, natural gas or explosives and are subject to specific regulations in the UK. Planning restrictions and constraints, and consultation distances apply within specific zones around the sites for developments to ensure safety is maintained.

Table 28-3 PINS scoping opinion responses – major accidents and disasters

PINS ID number	Scoping Opinion comment	How this is addressed in this PEIR
3.3.20	<p>Risks of Major Accidents and/or Disasters</p> <p>The ES should include a description and assessment (where relevant) of the likely significant effects resulting from accidents and disasters applicable to the Proposed Development.</p> <p>The Applicant should make use of appropriate guidance (e.g. that referenced in the Health and Safety Executives (HSE) Annex to Advice Note 11) to better understand the likelihood of an occurrence and the Proposed Development's susceptibility to potential major accidents and hazards.</p> <p>The description and assessment should consider the vulnerability of the Proposed Development to a potential accident or disaster and also the Proposed Development's potential to cause an accident or disaster. The assessment should specifically assess significant effects resulting from the risks to human health, cultural heritage or the environment.</p> <p>Any measures that will be employed to prevent and control significant effects should be presented in the ES.</p>	<p>This chapter provides a description of the potential major accidents and disasters in Section 28.9 to 28.11.</p> <p>The approach proposed in Annex G of Advice Note 11 is followed in Section 28.7.</p> <p>The vulnerability of the Proposed Development is described at a high level in Section 28.10 and Section 28.11.</p> <p>There are no significant effects considered likely to arise from major accidents and disasters on the basis of the embedded environmental measures. The description of these potential major accidents is included in Section 28.9 to 28.11.</p> <p>The measures employed to prevent any significant effects are described in Section 28.7.</p>

Informal consultation and further engagement

- 28.3.4 RED will be engaging with WSCC and HSE to determine the location, and operational and future status of the only relevant Major Accident Hazard site known as Aerosol Manufacturing plc. This site was identified by HSE in their response to the Scoping Report (RED, 2020), as it was located within the Scoping Boundary. It may be therefore located in close proximity to the onshore part of the PEIR Assessment Boundary.
- 28.3.5 However, in the process of implementing the embedded environmental measures outlined in **Section 28.7**, RED will be engaging with stakeholders and regulators including the HSE, Maritime and Coastguard Agency (MCA) and the Environment Agency (EA).

Informal consultation – January / February 2021

- 28.3.1 RED carried out an Informal Consultation exercise for a period of four weeks from 14 January 2021 to 12 February 2021. This Informal Consultation exercise aimed to engage with a range of stakeholders including the prescribed and non-prescribed consultation bodies, local authorities, Parish Councils and general public with a view to introducing the Proposed Development and seeking early feedback on the emerging designs.
- 28.3.2 There were no key themes emerging from Informal Consultation in January 2021 relating to major accidents and disasters.
- 28.3.3 Further detail about the results of the Informal Consultation exercise can be found in the **Informal Consultation Analysis**.

28.4 Scope of the major accidents and disasters PEIR chapter

Overview

- 28.4.1 This section sets out the scope of the PEIR for major accidents and disasters. This scope has been developed as the Rampion 2 design has evolved and responds to feedback received to date as set out in **Section 28.3**. As outlined in PINS Advice Note Seven (Planning Inspectorate, 2020b), information presented in the PEIR is preliminary. Therefore, this scope will be reviewed and may be refined as Rampion 2 evolves and as a result of ongoing consultation.
- 28.4.2 The Scoping Report proposed to scope out major accidents and disasters on the basis that they were adequately controlled. PINS requested that a description of any likely significant effects resulting from major accidents and disasters is included in the ES. The information provided in this PEIR chapter is intended to demonstrate that the risk of major accidents and disasters will be managed and reduced through the application of embedded environmental measures to ensure there are no significant effects as the result of the Proposed Development.
- 28.4.3 As there are no significant effects relating to major accidents and disasters after consideration of the embedded environmental measures, no assessment of cumulative, inter-related or transboundary effects has been undertaken.

Spatial scope and study area

- 28.4.4 As major accidents and disasters are scoped out of further assessment, no formal study area has been defined. The potential major accidents and disasters described in **Section 28.9** to **Section 28.11**, outline the presence of anticipated credible receptor populations in vicinity of the potential sources. However, the framework described in **Section 28.7** is designed to manage the risk of major accidents at source, including by influencing the design to eliminate or separate the hazards from potential receptors.
- 28.4.5 This chapter considers external sites holding hazardous materials sites with Hazards Substance Consent (including COMAH sites), licensed explosives sites and Major Accident Control Regulations (MACR) sites which could potentially influence the Proposed Development. Sites of these types will typically have land use planning restrictions applied which take the form of consultation zones. Those sites with consultation zones which could impact upon the site have been identified and described in **Section 28.6**.

Temporal scope

- 28.4.6 The temporal scope of the assessment of major accidents and disasters is the entire lifetime of Rampion 2, which therefore covers the construction, operation & maintenance and decommissioning phases.

Potential receptors

- 28.4.7 **Table 28-4** defines the receptors that are considered which can be affected by a major accident or disaster in line with the definition provided in **Section 28.1**.

Table 28-4 Receptors requiring assessment for major accidents and disasters

Receptor group	Receptors included within group
Population and human health	Construction workers, operations and maintenance workers, residential settlements and vulnerable receptors such as hospitals, schools and care homes.
Designated Sites (International, National and Other)	Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar Sites, Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Marine Conservation Zones (MCZs), National Parks, Environmentally Sensitive Areas (ESAs), Areas of Outstanding Natural Beauty (AONBs), Green Belt Land, Local Nature Reserves (LNRs), Local Wildlife Sites (LWSs) also known locally as County Wildlife Site, Sites of Importance for Nature Conservation (SINCs), and Sites of Nature Conservation Importance (SNICIs).
Scarce Habitats	Biodiversity Action Plan (BAP) habitats and Habitats of Principal Importance (HPI).

Receptor group	Receptors included within group
Widespread habitat	Land/water used for agriculture, forestry, fishing or aquaculture.
Particular species	Particular species covers all species, both plant and animal, found in the UK and includes common species, red data book species and other protected or priority species, including rare species.
Marine environment	Non-estuarine marine waters, sub-littoral zones, benthic community adjacent to the coast and fish spawning grounds.
Fresh and estuarine water habitat	Surface water such as streams, ponds, rivers, canals, reservoirs, estuaries and lakes.
Groundwater source (drinking water)	Drinking water sources (Source Protection Zones (SPZs)) in or under the soil.
Groundwater source (non-drinking water)	Non-drinking water sources such as aquifers under the soil.
Soil or sediment	Soil and sediments in the top metre of ground or under the water column not otherwise considered above.
Built environment (designated buildings/sites)	Grade I/II* listed buildings, Scheduled Monuments and Conservation Areas.

Major accident criteria

28.4.8 **Table 28-5** provides the level of harm which is considered to represent a major accident or disaster where the harm is anything other than short term. So, any level of harm which is less than that given in **Table 28-5** is discounted as it is not considered to be a major accident or disaster under commonly accepted major accident criteria drawn from standard industry practice endorsed by the HSE and the EA (CDOIF, 2016), (HSE, 2001a). The criteria are set at different levels based upon the relative sensitivity and scarcity of the receptors.

Table 28-5 Major accident threshold by receptor type

Receptor type	Major accident / disaster threshold
Population and Human Health - Human populations (public)	Substantial number (5+) of people requiring medical attention or any serious/life-changing injuries. Events of this magnitude may also involve some damage to housing, with low numbers of people

Receptor type	Major accident / disaster threshold
Population and Human Health - Human populations (workers)	being displaced. Potential for localised interruption to utilities and damage to infrastructure. Multiple life changing injuries or fatalities.
Designated land or water sites (internationally important)	>0.5 ha or 5-25% of site area or 5-25% of associated linear feature or population.
Designated land or water sites (nationally important)	>0.5 ha or 10-50% of site area, associated linear feature or population.
Other designated land	10-100 ha or 10-50% of land.
Scarce habitat	2-20 ha or 10-50% of habitat.
Widespread habitat – non-designated land	Contamination of 10-100 ha of land, preventing growing of crops, grazing of domestic animals or renders the area inaccessible to the public because of possible skin contact with dangerous substances. Alternatively, contamination of 10ha or more of vacant land.
Widespread habitat – non-designated water	Contamination of aquatic habitat which prevents fishing or aquaculture or renders it inaccessible to the public.
Particular species (these criteria apply nationally)	Loss of 1-10% of animal or 5-50% of plant ground cover.
Marine	2-20ha littoral or sub-littoral zone, 100-1,000ha of open sea benthic community, 100-1,000 dead sea birds (500-5,000 gulls), 5-50 dead or significantly impaired sea mammals.
Fresh and estuarine water habitats	Water Framework Directive (WFD) chemical or ecological status lowered by one class for 2-10km of watercourse or 2-20ha or 10-50% area of estuaries or ponds. Interruption of drinking water supplies, as per Groundwater Source of Drinking Water.
Groundwater source of drinking water	Interruption of drinking water supplied from a ground or surface source (where persons affected x duration in hours [at least 2] >1,000) or for England and Wales only 1-10ha of SPZ where drinking water standards are breached.

Receptor type	Major accident / disaster threshold
Groundwater – non-drinking water source	1-100ha of aquifer where water quality standards are breached (or hazardous substance is discernible).
Soil or sediment (i.e. as receptor rather than purely a pathway)	Contamination of 10-100ha of land etc. as per widespread habitat; contamination sufficient to be deemed environmental damage (Environmental Liability Directive).
Built environment (designated buildings/sites)	Damage sufficient for designation of importance to be withdrawn.

Potential effects

- 28.4.9 As stated in the Scoping Report (RED, 2020), all potential effects have been scoped out from further assessment, as it has been concluded there are no likely significant effects. These conclusions have been made based on knowledge of the baseline environment, and the nature of planned works including the embedded environmental measures, and the wealth of evidence on the potential for impacts from offshore wind and power transmission projects more widely.
- 28.4.10 The vulnerability of the Proposed Development to a potential accident or disaster and also the Proposed Development's potential to cause an accident or disaster have both been identified and considered within this chapter. The risk of these events is considered so low, as to not be considered significant.
- 28.4.11 **Section 28.7** provides a description of the comprehensive framework that RED utilises and will utilise to ensure that there are no significant effects throughout the Proposed Development lifecycle.
- 28.4.12 A description of the potential major accident and disasters identified (as requested by PINS) and how some of the embedded environmental measures will be enacted is given in **Sections 28.9** to **Section 28.11**.
- 28.4.13 Effects have not been considered or documented further where they do not represent either a major accident or disaster, based on the definitions in this chapter. This could be because:
- the potential consequences do not meet the threshold of a major accident or disaster;
 - where the Proposed Development does not materially alter the risk of a major accident or disaster occurring;
 - there is either no credible pathway or receptor; or
 - the accident involves a workplace hazard, which can only impact the workers undertaking the task such as falls from height or mis-use of tools. This is considered to be an occupational health and safety incident which is managed

through compliance with the Management of Health and Safety at Work Regulations and not the intended purpose of EIA.

28.5 Methodology for baseline data gathering

Overview

- 28.5.1 Baseline data collection has been limited to that required to support the information requested by PINS described in **Section 28.3**. The data obtained is summarised in **Section 28.6** and sets out the currently available information.
- 28.5.2 The data sources that have been collected and used to inform this major accidents and disasters assessment are summarised in **Table 28-6**.

Table 28-6 Data sources used to inform the major accidents and disasters PEIR chapter

Source	Date	Summary	Coverage of study area
HSE	28 July 2020	Response to Scoping Report covering Major Accident Hazard Sites, and Explosives sites.	Scoping Boundary provided in Scoping Report (RED, 2020).
Companies House	26 January 2021	Searches relating to Aerosol Manufacturing plc.	N/A

Data limitations

- 28.5.3 The status of a potential Major Accident Hazard site known as Aerosol Manufacturing plc is not currently confirmed. However, the embedded environmental measure (C-173) given in **Table 28-7**, ensures that there is no significant risk of a major accident from this site (if it still exists) affecting the Proposed Development.
- 28.5.4 There are no further data limitations relating to major accidents and disasters that affect the robustness of this PEIR.

28.6 Baseline conditions

Current baseline

- 28.6.1 As Major Accidents and Disasters is scoped out of further assessment in the EIA, only a limited amount of relevant baseline information has been gathered in order to facilitate the description of the (non-significant) potential major accidents and disasters requested by PINS.

- 28.6.2 The receptor baseline for major accidents and disasters is as described in other chapters including:
- **Chapter 13: Shipping and navigation;**
 - **Chapter 14: Nature conservation;**
 - **Chapter 23: Terrestrial ecology and nature conservation;**
 - **Chapter 24: Transport;**
 - **Chapter 26: Historic environment;** and
 - **Chapter 27: Water environment.**
- 28.6.3 A variety of factors will need to be accounted for in the final design of the Proposed Development. These include geological factors, seabed terrain, shipping traffic and onshore hydrogeology. These factors will be determined as required throughout the design process and a suitable design will be engineered to minimise the risk of major accidents and disasters. The incidence and severity of environmental, atmospheric and meteorological conditions will be defined as part of the Proposed Development design requirements. The Proposed Development design requirements will account for the anticipated worst-case environmental conditions foreseeable throughout the Proposed Development lifecycle.
- 28.6.4 There are three Major Accident Hazard sites and pipelines identified by the HSE in their contribution to the Scoping Opinion. There are:
- two pipelines operated by Southern Gas Networks, one between Henfield and Crossbush, and the other between Mogador and Dyke. These pipelines will be considered during the iterative design process; and
 - a Major Accident Hazard site operated by Aerosol Manufacturing plc. This site does not exist on the HSE COMAH Public Information Portal and no record of such a corporation exists on Companies House. The only records available online suggest this company was dissolved in approximately 1993, which suggests the consent, while remaining, is likely to be historic and not currently in use. This will be confirmed through engagement with HSE and WSCC.
- 28.6.5 For clarity, there are no sites which are subject to the Major Accident Off-Site Emergency Plan (Management of Waste from Extractive Industries) (England and Wales) Regulations (2009), which have been identified which could impact upon the Proposed Development.

Future baseline

- 28.6.6 The future baseline for major accidents and disasters will evolve along a number of factors over the Proposed Development lifecycle.
- 28.6.7 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 a disaster.

- 28.6.8 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 **Appendix 5.2, Volume 4**. The effects of climate change on anticipated weather conditions within the construction phase are anticipated to be minimal.
- 28.6.9 There could be changes in land or water use in the surrounding environment, which could become more agricultural, industrial, residential or recreational in use. Land use and climate change factors could impact the local ecology and associated environmental designations. The marine environment could be subject to more commercial fishing/shipping and recreational boat usage. These changes are anticipated to be gradual in nature and as there is minimal potential for major accidents during the operational phase, this is unlikely to have an impact.
- 28.6.10 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.
- 28.6.11 The embedded environmental measures which comprise the framework described in **Section 28.7** are designed to account for these factors. 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.

28.7 Basis for the major accidents and disasters PEIR chapter

Maximum design scenario

- 28.7.1 Major accidents and disasters has been scoped out on the basis of a framework of embedded environmental measures. These embedded environmental measures collectively comprise a good practice approach to risk management which meets with regulatory expectations and ensures compliance with all legal requirements. This approach is similar to the maximum assessment assumption scenario approach utilised in other chapters of the PEIR. The approach of embedding a risk management framework as the key environmental measure rather than specific infrastructure-based commitments means that the assessment of no significant effects will remain valid for any foreseeable changes in the design. This allows the Proposed Development the flexibility to make improvements in the future in ways that cannot be predicted at the time of submission of the DCO Application.
- 28.7.2 Although the proposed approach to managing the risk of major accidents and disaster allows flexibility in the final options selected, it is anticipated that the key elements of the Proposed Development will remain the same. The key pieces of infrastructure involved in the Proposed Development (outlined in **Chapter 4**) are:
- offshore wind turbine generators;
 - offshore array cables;

- offshore interconnector cables;
- offshore substations;
- offshore export cable corridor;
- onshore cable corridor; and
- onshore substation.

Embedded environmental measures

- 28.7.3 As part of the Rampion 2 design process, a number of embedded environmental measures have been adopted to reduce the potential for impacts arising from major accidents and disasters. These embedded environmental measures will evolve over the development process as the EIA progresses and in response to consultation. They will be fed iteratively into the assessment process.
- 28.7.4 These measures typically include those that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislation requirements. As there is a commitment to implementing these embedded environmental measures, and also to various standard industry practices and procedures, they are considered inherently part of the design of Rampion 2 and are set out in this PEIR.
- 28.7.5 **Table 28-7** sets out the relevant embedded environmental measures within the design and how these affect the major accidents and disasters assessment.

Table 28-7 Relevant major accidents and disaster embedded environmental measures

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to major accidents and disasters assessment
C-6	Where practical, sensitive sites will be avoided by the temporary and permanent onshore project footprint including SSSIs, Local Nature Reserves, Local Wildlife Sites, ancient woodland, areas of consented development, areas of historic and authorised landfills and other known areas of potential contamination, National Trust Land, Listed	Scoping - updated at PEIR	DCO works plans and order limits.	This measure will ensure separation between sources of major accidents and receptors to minimise the potential for harm.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to major accidents and disasters assessment
C-8	<p>Buildings, Scheduled monuments, and mineral resources (including existing mineral sites, minerals sites allocated in development plans and mineral safeguarding areas).</p> <p>During both construction and operation, vehicle maintenance and refuelling of machinery will be undertaken within designated areas where spillages can be easily contained, and machinery will be routinely checked to ensure it is in good working condition. These areas at risk of spillage or containing hazardous substance stores (including fuel, oils and chemicals) will comply with industry good practice, be bunded, have appropriate containment and segregation and will be risk assessed and carefully sited to minimise the risk of hazardous substances entering the drainage system, or the local watercourses or sensitive land-based receptors. Where feasible, such areas will be sited at least 10m from a watercourse and</p>	Scoping - updated at PEIR	Outline Code of Construction Practice (COCP) and DCO requirement.	This measure will minimise the potential for spillages to impact the water environment.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to major accidents and disasters assessment
	away from areas at risk of flooding. Additionally, the bunded areas will have impermeable bases to limit the potential for migration of contaminants into groundwater following any leakage/spillage.			
C-25	All aspects of the construction work will be in accordance with the Construction (Design and Management) Regulations 2015.	Scoping	Outline COCP and DCO requirement.	This measure will ensure that effects arising during the construction and decommissioning phases will be risk assessed and reduced to ALARP.
C-53	An Outline Marine Pollution Contingency Plan (MPCP) will be developed. This MPCP will outline procedures to protect personnel working and to safeguard the marine environment and mitigation measures in the event of an accidental pollution event arising from offshore operations relating to Rampion 2. The MPCP will also include relevant key emergency contact details.	Scoping	DCO requirements or Marine Licence (DML) conditions.	This measure will reduce the potential for offshore spills to cause harm to the marine environment.
C-56	RED will apply for safety zones post consent. Safety zones of up to 500m will be	Scoping	Electricity application procedures	This measure will ensure that other sea users

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to major accidents and disasters assessment
	<p>sought during construction, maintenance and decommissioning phases. Where appropriate, guard vessels will also be used to ensure adherence with Safety Zones or advisory passing distances, as defined by risk assessment, to mitigate any impact which poses a risk to surface navigation during construction, maintenance and decommissioning phases. Such impacts may include partially installed structures or cables, extinguished navigation lights or other unmarked hazards.</p>		(Section 95 of Energy Act 2004).	will be kept at a safe distance from offshore construction works.
C-75	<p>Construction and permanent development in flood plains will be avoided wherever possible. Where this is not possible (for example, the landfall location) environmental measures will be developed to ensure the works are National Policy Statement compliant, including a sequential approach to siting of infrastructure and passing the Exception Test where appropriate.</p>	Scoping - updated at PEIR	Outline COCP and DCO requirement	This will minimise the risk flooding impacting the Proposed Development.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to major accidents and disasters assessment
C-76	In line with good practice Pollution Prevention Plans (PPPs) will be developed to detail how ground and surface waters will be protected in construction and operation. These will include information on the use and storage of any fuels, oils and other chemicals (in line with commitments C-8 and C-167) and pollution incidence response planning. These will include measures for the protection of licenced and private abstractions. This could include a monitoring regime associated with critical or very near receptors.	Scoping - updated at PEIR	Outline COCP and DCO requirement	This measure will minimise the risk of spillages affecting the environment.
C-84	RED will exhibit lights, marks, sounds, signals and other aids to navigation as required by Trinity House, MCA and Civil Aviation Authority (CAA). This will include a buoyed construction area around the Rampion 2 array.	Scoping	DML conditions.	This measure will minimise the potential for collisions involving the offshore elements of the Proposed Development.
C-85	RED will ensure that the local NtM (notices to mariners) is updated and reissued at weekly intervals during construction activities and at least five	Scoping	DML conditions.	This measure will minimise the potential for collisions involving the offshore

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to major accidents and disasters assessment
	days before any planned operations and maintenance works and supplemented with VHF (very high frequency) radio broadcasts agreed with the MCA in accordance with the construction and monitoring programme approved under DML conditions.			elements of the Proposed Development.
C-108	An Emergency Response and Cooperation Plan (ERCOP) will be developed.	Scoping - updated at PEIR	DCO requirements or DML conditions.	This measure will ensure that appropriate emergency response actions can be taken in the event of an accident to minimise the potential harm.
C-117	Works in the floodplain will be programmed to occur in late summer/ early autumn if possible, to avoid interaction with known flooding periods to minimise the potential for displacement of floodwater.	PEIR	Outline COCP and DCO requirement	This will minimise the risk flooding impacting the Proposed Development.
C-118	Emergency Response Plans (ERPs) for flood events will be prepared for all construction activities, working areas, access and egress routes in floodplain areas (tidal and fluvial).	PEIR	Outline COCP and DCO requirement	This will minimise the risk flooding impacting the construction workforce.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to major accidents and disasters assessment
	These plans will be provided for both construction and operation/maintenance phases.			
C-170	A Health, Safety, Security and Environment (HSSE) Strategy will be developed. The HSSE Strategy will describe the way in which the Proposed Development will be delivered. It will include detail of compliance with relevant policies, Management Systems and regulatory requirements, throughout the lifecycle of the Proposed Development.	PEIR	Outline COCP	This measure will provide the overall framework through which the risk of potential major accidents and disasters are reduced to ALARP. It will also provide a securing mechanism for other measures.
C-171	A suitable and sufficient risk assessment of the potential impacts of major accidents and disasters is undertaken, and this will be kept under review throughout the Proposed Development lifecycle (design, construction, operation and decommissioning stages).	PEIR	Outline COCP	This will ensure that all potential major accidents and disasters are identified, assessed and their risk is reduced to ALARP
C-172	The risk resulting from Major Accidents and/or Disasters will be eliminated So Far As Is Reasonably Practicable (SFAIRP) and any risk which cannot be	PEIR	Outline COCP	This will ensure that the risk of harm arising from major accidents and disasters to any

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to major accidents and disasters assessment
	designed out will be examined to ensure the risk is Reduced As Low As Reasonably Practicable (ALARP). This applies to both Safety and Environmental Major Accidents and the impacts on the Proposed Development from disasters.			receptors is reduced to ALARP.
C-173	The design and layout of the Proposed Development will account for Health and Safety Executive's (HSE) approach to Land Use Planning, and the Proposed Development will be designed to ensure that a response of 'Do Not Advise Against' is received from the HSE.	PEIR	Embedded into design.	This will minimise the potential for external major accidents to impact the Proposed Development.

RED approach to managing major accidents and disasters

Introduction

- 28.7.6 This section is intended to provide summary detail of the processes which will be enacted to ensure that the risk of major accidents and disasters is minimised.
- 28.7.7 RED is a joint venture between RWE Renewables, Enbridge, and a Macquarie-led consortium. These joint venture partners are also shareholders in the Rampion 1 project, with RWE being the majority shareholder and Development Service Provider for the joint venture. RWE is an experienced and established renewables operator with multiple existing offshore wind developments in operation and at various stages of the design, construction and operation phases including Rampion 1, Sofia, Galloper and Triton Knoll. Lessons learned and industry good practice learned from these projects have been and will be applied to the Proposed Development.

- 28.7.8 RED will ensure that major accidents and disasters are managed through the HSSE Management System which is structured around 12 key elements, based upon the Plan-Do-Check-Act model which is presented by the HSE (HSE, 2013).
- 28.7.9 The approach of RED has three main objectives:
- no lost time incidents;
 - no harm to personnel; and
 - minimise environmental impacts.
- 28.7.10 The strategic approach taken by Rampion 2 is to ensure the Proposed Development complies with the following principles:
- risks are minimised ‘So Far As Is Reasonably Practicable’ (SFAIRP);
 - risks are ‘As Low As Is Reasonably Practicable’ (ALARP); and
 - the Best Available Techniques (BAT) for avoiding or minimising pollution is applied.
- 28.7.11 The management system will be implemented proportionately at each stage of the Proposed Development to ensure that the risks of major accidents and disasters will be reduced ‘As Low As Reasonably Practicable’ and thereby ensuring there will be no significant effects. This will be implemented through C-170. However, this means that not all assessments are available at this stage, as there will be iterative assessment throughout the design, construction, and operation of the Proposed Development. This commitment to risk assessment and reduction is captured in C-171 and C-172 in **Table 28-7**.
- 28.7.12 The following sections are examples of actions, processes and measures which will be driven by the implementation of the HSSE Management System. Unless otherwise stated, measures in **paragraphs 28.7.15 to 28.7.43** should be read to be secured by C-170.

HSE and Public Health England

- 28.7.13 Public Health England states that the interaction of the Proposed Development with the COMAH Regulations (HSE, 2015) or similar sites should be considered. For clarity, the Proposed Development is not within scope of the COMAH Regulations or any other Major Accident Hazard regulatory regime (such as the Major Accident Off-Site Emergency Plan (Management of Waste from Extractive Industries) (England and Wales) Regulations (2009), as the Proposed Development does not involve significant quantities of dangerous substances. The potential for external Major Accident Hazard sites and pipelines to impact upon the Proposed Development is limited due to the small populations involved in the Proposed Development but is considered in the description of External Major Accidents in **Section 28.10**.
- 28.7.14 Annex G of the PINS Planning Advice Note 11 states that “*If the Proposed Development is not within scope of the COMAH Regulations, the safety concerns related to any work activity would be addressed under the Health and Safety at Work, etc Act 1974 and its relevant statutory provisions*” but 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". The PEIR presents how the framework that RED has in place will ensure that the Health and Safety at Work Act and other statutory provisions will be met.

Risk assessment and the hierarchy of controls

- 28.7.15 Best practice in risk management relies on a number of key principles, which are supported by the UK legislative framework for Health and Safety, and Environmental Major Accidents.
- 28.7.16 Firstly, a suitable and sufficient risk assessment which consider both the likelihood and 'credible worst case' consequences of potential major accident and disaster scenarios should be undertaken. Any risk assessments should consider 'what more can be done?' and seek to apply the 'hierarchy of controls'.
- 28.7.17 The hierarchy of controls prioritises risk reduction measures so that the inherently safe option which eliminates the risk entirely is considered first, then any measures which prevent the risk, then measures which control the risk and so on. The outcome of this approach is that the most effective risk reduction measures are selected, and the residual risk is minimised.
- 28.7.18 An example of this is given in embedded environmental measure C-6, which sets out to avoid environmental receptors when practical to do so. This physical separation will reduce the potential for any adverse impact by removing the pathway for harm. Other measures can be specified to prevent harm at design stage, for example, the construction compounds have to be designed to site fuel storage so as to minimise the potential for spills of fuel in embedded environmental measure C-8. These measures are listed in **Table 28-7**.

Designing risk out of the Proposed Development

- 28.7.19 The most effective stage to reduce risk is during the design process of the Proposed Development. RED has ensured that HSSE considerations are an integral component of the engineering design process and has set a number of design safety expectations for the design team to comply with. These expectations include minimising risk where possible, considering alternatives and designing out risk across the whole Proposed Development lifecycle. Building resilience into the design will be key to ensuring robust risk management throughout the lifecycle, which will include factors like ensuring the design accounts for the anticipated effects of climate change. The Proposed Development has also built-in appropriate methods and review mechanisms to ensure that these expectations are met.
- 28.7.20 The Proposed Development will have a defined Hazard Identification and Risk Assessment system, which will include Hazard Identification, Environmental Hazard Identification and Hazard & Operability (HAZOP) studies at appropriate stages throughout the design.
- 28.7.21 Design Risk Assessments (DRA) will be undertaken at various stages of the design by a team of designers, discipline experts and managers. It will evaluate the design and the risks included in the proposed approach.

- 28.7.22 RED (as Client under CDM) will appoint a Principal Designer who will be responsible for the design choices and ensuring that the design complies with all requirements including the CDM Regulations, contractual specifications, and the RED expectations for Design Safety.
- 28.7.23 Key design decisions which affect potential major accidents and disasters will be recorded in a design decision log with the justification for the options selected. This will include items such as material of construction, sizing of components and approaches for managing integrity. Some of these will come after development consent is granted.
- 28.7.24 The risk assessments undertaken through the design process will consider the ability to construct and maintain the system. They will also evaluate whether there is more that could be done to reduce or eliminate risk i.e. 'is the risk ALARP?'

Managing risk during the construction phase

- 28.7.25 The construction phase is the first phase of the Proposed Development where there is the risk of a major accident or disaster occurring. It also coincides with the largest workforce population associated with the Proposed Development. The construction workforce is a new population which could be affected by a major accident or disaster and may additionally be unfamiliar with the area.
- 28.7.26 The CDM Regulations require specific processes to address issues which are unique to construction projects. RED will fully implement the CDM process through a dedicated procedure (outlined in embedded environmental measure C-25 in **Table 28-7**) and will ensure that the risk assessments through this process will adequately assess the impacts of major accidents and disasters in addition to workplace/ occupational injury potential associated with the construction phase activities.
- 28.7.27 RED will appoint a Principal Designer and a Principal Contractor, who will be responsible for the management of risk (including of major accidents and disasters) during the design and construction phases.
- 28.7.28 RED will undertake a Catastrophic Risk Analysis as suggested by the HSE (HSE, 2011) to ensure that all reasonably foreseeable major accidents and disasters are identified and captured in the risk assessment.

Operating safely

- 28.7.29 As described above, the risk will be reduced through processes designed to either eliminate or reduce the residual risk of any events to ALARP. The RED HSSE Strategy will be to ensure that the RWE HSSE Management System is applied throughout the operational phase of Rampion 2 (C-170).
- 28.7.30 The key risks will be identified by Hazard Identification (HAZID)/HAZOP and included in the Design Risk Assessment (C-171). This will include the Design Risk Register developed by the Principal Designer throughout the design and construction process, which is handed over at the end of construction, in compliance with the CDM regulation (C-25). During the design and construction phases, the Principal Designer, Principal Contractor (once appointed) and the Client (RED), all have a role to ensure that HSSE risk is managed. These risk

assessments will be kept under review to ensure that any new hazards or potential risk reduction measures can be identified and incorporated.

- 28.7.31 Dependent on the nature of the potential harm, there will be appropriate systems in place to manage the risk. Major accidents and disasters are high consequence events which need significantly more robust control measures than low consequence events like slips and trips. It is anticipated that all accident scenarios will have safe ways of working, procedures and permits to ensure that risk is managed. There will also be processes in place (wherever possible) to forewarn and protect against the impacts of disasters such as flood warnings and wind forecasting.
- 28.7.32 RED will monitor the effectiveness of the HSSE policies utilising a number of measures including proactive and reactive indicators and will intervene to ensure that an appropriate level of protection is maintained (C-170).

Responding to incidents

- 28.7.33 Suitable plans for what to do if a major accident or disaster occurs, are one of the final barriers in good risk management. Emergency response plans will be produced where there is a residual risk of major accidents or disasters occurring, although many of these events will not be potential major accidents or disasters. Where there is a residual risk of a major accident or disaster identified, these will be covered by a plan for the emergency response actions to be taken.
- 28.7.34 RED has committed to producing an Emergency Response and Cooperation Plan (C-108), and a Marine Pollution Contingency Plan (C-53) as described in **Table 28-7**. These plans will form the foundation of ensuring an appropriate emergency response capacity for the offshore elements of Rampion 2.
- 28.7.35 The Proposed Development has also committed to developing a pollution prevention plan for preventing and dealing with onshore spills (C-76). During construction, the Principal Contractor will be responsible for ensuring that suitable emergency response arrangements are in place, in line with CDM and the appropriate risk assessment.

Lessons learned

- 28.7.36 RWE operates a central Lessons Learned database which allows the transfer of learning across the organisation from previous projects or industry incidents. As RWE are a key part of the RED joint venture undertaking the Proposed Development, RED will have direct access to this experience. There are also direct transfer of lessons learned reports at the end of any project, such that Rampion 2 will benefit from any lessons learned on the Rampion 1, Sofia, Triton Knoll or Galloper projects.
- 28.7.37 The HSSE Management system also requires that any lessons learned after significant incidents are also distributed to all RWE Projects (including Rampion 2) so that the lessons can be incorporated.

Contractors and supply chain

- 28.7.38 Various parts of the Proposed Development during each phase will be undertaken by contractors on behalf of RED. RED will review the management system of every contractor to ensure that they meet the expectations of the Proposed Development in respect of HSSE.
- 28.7.39 Every contractor and any sub-contractors will be expected to comply with RWE and RED requirements for delivering the Proposed Development safely in line with any plans, requirements or risk assessment produced.
- 28.7.40 During the construction phase, RED will appoint a suitable Principal Contractor and in line with the requirements of the CDM Regulations. The Principal Contractor will devise a HSSE plan for Rampion 2 in line with RED, and they shall be responsible for managing the performance of all sub-contractors against the HSSE plan.
- 28.7.41 All contractors will be evaluated on HSSE criteria as part of the tender phase for contractor selection. Any contractor who cannot achieve the standards required will not be selected to work on the Proposed Development.
- 28.7.42 RED, in conjunction with the Principal Designer and Principal Contractor during the construction phase, will be responsible for ensuring that suitable information related to major accidents and disasters are provided to contractors to minimise the risk.

Summary

- 28.7.43 RED's approach to managing the risks of major accidents and disasters is contained in the framework described in this section. The approach is intended to manage all issues related to Health, Safety, Security and the Environment. This includes the potential major accidents and disasters and allows a comprehensive risk-based approach to be taken. This section is not intended to be a comprehensive description but rather a high-level summary of how RED will ensure that all risk is reduced to ALARP, which will ensure there will be no significant effects arising from major accidents and disasters.

28.8 Approach for the major accidents and disasters PEIR chapter

- 28.8.1 The project-wide generic approach to assessment is set out in **Chapter 5: Approach to the EIA**. The Scoping Report (RED, 2020) proposed to scope out the assessment of major accidents and disasters for the PEIR. PINS requested additional description of the potential major accidents and disasters, which has been provided in this chapter.
- 28.8.2 No assessment methodology has been provided as major accidents and disasters has been scoped out from assessment however a description of effects is provided. **Section 28.1** provides definitions for 'major accident' and 'disaster', and **Section 28.4** provides the receptors and level of harm which are considered to meet these definitions.

- 28.8.3 The potential major accidents and disasters have been captured in three categories:
- major accidents originating from within the Proposed Development are described in **Section 28.9**;
 - major accidents from the surrounding environment which could affect the Proposed Development are described in **Section 28.10**; and
 - disasters which could affect the Proposed Development are described in **Section 28.11**.
- 28.8.4 Each of the categories described above include potential events for both the offshore and onshore elements of the Proposed Development.

28.9 Description of effects: Major accidents: The Proposed Development

Introduction

- 28.9.1 This section provides a description of the potential major accidents originating from the Proposed Development which could occur through the Proposed Development lifecycle. It describes their type, foreseeable consequences and how the embedded environmental measures described in **Section 28.7** will manage the risk to ensure that there are no significant effects.

Offshore major accidents

Overview

- 28.9.2 The potential offshore major accidents identified could lead to fatalities amongst the offshore workforce associated with the Proposed Development, either during construction, operation and maintenance or decommissioning. With the exception of marine vessels, it is not considered that any third-parties could be impacted. The risk of such events occurring is not considered to be significant due to the presence of Safety Zones (embedded environmental measure C-56 in **Table 28-7**) during construction and a Notice to Mariners (NtM) at other times. There is also potential for spillages of hazardous substances including chemicals and fuels, which could affect the sea and wider marine environment.
- 28.9.3 The types of potential major accident offshore include transport accidents (vessel collision/helicopter accident), spillages of chemicals or fuels, construction hazards, fires, electrical hazards or physical hazards such as ice or blade throw.
- 28.9.4 The offshore location of these incidents increases the importance of rigorous emergency planning, as there can be hazards associated with attempted escape, evacuation and rescue when offshore following an emergency event. RED will ensure that the emergency plans cover foreseeable major accident and disaster scenarios in line with regulatory expectation, and appropriate escape, evacuation and rescue (HSE & MCA, 2019).

Physical hazards

- 28.9.5 There are various potential major accidents associated with the construction, operation and maintenance, and decommissioning phases of the Proposed Development. During the operation and maintenance phase, there will normally be no offshore workforce present, as the Proposed Development will only be manned for routine and reactive maintenance. During construction and decommissioning, Safety Zones will be sought to exclude other vessels from a 500m area around the construction / decommissioning works.
- 28.9.6 There is the potential for major accidents caused by physical impacts such as dropped loads from a crane, structural collapses or failure of a jack-up vessel in the field. These large hazards could lead to multiple fatalities but are managed through strong control measures implemented through the HSSE Management System (C-170) and good design. For the lifting hazards, there will be safe systems of work, exclusion zones, lift planning and permits required for significant crane lifts implemented through the HSSE Management System (C-170).
- 28.9.7 There are operation and maintenance phase physical hazards, particularly around ice thrown from blades or the potential blades to become detached in excess wind speeds. The Proposed Development will define appropriate conditions within the design basis and management systems (C-170), for when the turbines can operate to minimise the risk of damage to the turbine and when it is considered safe to approach the turbines e.g. during adverse weather. Physical hazards may also include structural collapse and dropped/swung loads including at the substation.
- 28.9.8 Details of all hazards will not be fully known until the design, location, and construction methods are finalised, but the framework outlined in **Section 28.7** is designed to adapt to any design and ensure that the risk is reduced to ALARP for all potential major accidents.

Electrical

- 28.9.9 During commissioning and operation of the Proposed Development, there is the potential for electrocution of workers due to accidents involving live equipment. These hazards are mitigated through the design of the systems and appropriate safe systems of work being employed for maintenance.
- 28.9.10 Electrocution hazards are primarily protected by good design of the electrical systems and safe systems of work, which will be considered by the framework described in **Section 28.7** (C-170). However, this process will also ensure that appropriate escape routes are available in the event of an emergency.

Fire and explosions

- 28.9.11 There could be a fire or explosion onboard one of the construction or operations support vessels or in the offshore substation (once constructed) but these will be managed through good design and the inclusion of appropriate fire protection systems. These events could lead to a small number of fatalities amongst the offshore workers as part of the Proposed Development.

- 28.9.12 Details of hazards will not be fully known until the design, location, and construction methods are finalised but the framework outlined in **Section 28.7** is designed to adapt to any design and ensure that the risk is reduced to ALARP for all potential major accidents.

Spills

- 28.9.13 The potential inventories of material used offshore during all phases of the Proposed Development are likely to be extremely small in most cases. The marine vessels will have fuel tanks which could fail leading to a spill but these systems will be designed to the appropriate standard for offshore commercial marine vessels and would only be released in the event of a marine vessel sinking. There will be inventories of chemicals and oils used for the wind turbine generators and substations, these will be designed with adequate containment and the minimum inventory required for safe and efficient operation.
- 28.9.14 If a fire were to occur while offshore or a leak from the fire protection systems, then there could be a release of extinguishing media to sea.
- 28.9.15 The marine receptor is the most credible receptor although there are nearby designated sites (national and internationally important sites). The most likely consequence is a short-term contamination (pollution event) affecting the sea surface around the Proposed Development.
- 28.9.16 The use and potential spillage of any substances used will be risk assessed through the framework described in **Section 28.7**, with spill response procedures put in place. A key objective of this plan is to ensure that the Best Available Technique is used to prevent any pollution. The Proposed Development has also committed to developing a Marine Pollution Contingency Plan (MPCP) for dealing with offshore spills, which will be agreed with the Marine Management Organisation (MMO) (C-53).

Transport accidents

- 28.9.17 The transport of personnel and equipment to and from the Proposed Development is unavoidable during the construction, operations and maintenance, and decommissioning phases. As with any mode of transport, there is the risk of accidents associated with it, which could lead to fatalities in the offshore workforce or third parties. Accidents of this type includes ship collisions and helicopter accidents. The Proposed Development will utilise both boat (including ship) and potential helicopter transport.
- 28.9.18 The safe transport of all personnel will be considered by risk assessment through the Proposed Development risk management framework described in **Section 28.7** (C-170). The potential for vessels to impact upon the Proposed Development also forms part of the design risk assessment (C-171), ensuring that the Proposed Development can withstand minor vessel impacts.

Onshore major accidents

Overview

- 28.9.19 For the onshore elements of the Proposed Development, there were four types of potential major accidents identified. No major accidents associated with the onshore cable have been identified, once it has been constructed and buried.

Physical accident

- 28.9.20 The construction of the onshore cable and onshore substation carries the risk of an accident occurring and leading to a low number of worker fatalities (e.g. due to crane topple or trench collapse).
- 28.9.21 The hazards associated with construction and decommissioning projects, are known and well understood. RED will implement, through the management system, RWE's established process for managing these projects which complies with the CDM Regulations and industry good practice. All aspects will be risk assessed, and the ability to safely undertake works will be a material consideration in the design process. A summary of this approach is described in **Section 28.7**.
- 28.9.22 There is potential for the onshore above ground structures to collapse during the operation and maintenance phase. In most cases, there will be no workers present, as the onshore substation is not normally occupied once operational, although planned site visits will occur. The primary mitigation is to ensure that the elements of the Proposed Development are designed in accordance with industry good practice and the anticipated environmental conditions.

Spills

- 28.9.23 The construction and decommissioning phases will require the use of fuels and some limited inventories of chemicals. There may also be some limited inventories of oils associated with transformers in the onshore substation during the operational phase. The use and potential spillage of any substances used will be risk assessed through the framework described in **Section 28.7**, with spillage response procedures put in place. A key objective of this framework is to ensure that the Best Available Technique is used to prevent any pollution.
- 28.9.24 The Proposed Development has also committed to developing a pollution prevention plan for preventing and dealing with onshore spills (C-76 in **Table 28-7**). Any fuel tanks used as part of the Proposed Development will be double skinned with leak detection in the bund (C-25).

Electrical accident

- 28.9.25 There may be electrical hazards associated with the commissioning and decommissioning of the onshore infrastructure, and particular consideration will be given to tie-in to the existing electrical grid. The Proposed Development will be designed to allow this to be done in a safe manner utilising industry standard practices including for isolation and testing of High Voltage Alternating Current (HVAC) systems.

- 28.9.26 There is a potential major accident involving electrocution during the operation and maintenance phase if there were to be a failure at the onshore substation. The onshore substation will not normally be occupied, so in the unlikely event that a failure developed, there would be no receptor to be harmed. If a fire occurred during operation and maintenance, then there is the potential for one to two workers to be injured or killed.
- 28.9.27 Electrocution hazards are primarily protected by good design of the electrical systems and safe systems of work, which will be considered by the framework described in **Section 28.7**. However, this process will also ensure that appropriate escape routes are available in the event of an emergency.

Fire/explosion

- 28.9.28 There is the potential for a fire involving diesel fuel or combustible materials in the construction compound. These will be prevented by selecting fuel tanks of a robust design, siting them appropriately within secured compounds and providing suitable containment and ignition control. Other minor fires will be prevented through good site management practices to minimise any material build up.
- 28.9.29 A potential major accident identified onshore during the operation and maintenance phase is a fire or explosion which could occur at one of the substations. The onshore substation will not normally be occupied, so in the unlikely event that a fire did occur, there would be no receptor to be harmed. If a fire occurred during operation and maintenance, then there is the potential for one to two workers to be injured or killed.
- 28.9.30 Fires and explosions are primarily protected by good design of the electrical systems and fuel storage, which will be considered by the framework described in **Section 28.7**. However, this process will also ensure that appropriate fire protection systems and escape routes are available in the event of an emergency.
- 28.9.31 The workers who could be involved will be experienced and competent operators, who understand the risks associated with HVAC electrical and vehicle refuelling systems.

28.10 Description of effects: major accidents – External

Overview

- 28.10.1 This section provides a description of the potential major accidents originating external to the Proposed Development but which could impact upon it. It describes their type, foreseeable consequences and how the embedded environmental measures described in **Section 28.7** will manage the risk to ensure that there are no significant effects.

Ground Hazards

- 28.10.2 There is the potential for major accidents associated with the ground on any onshore construction work, these include the potential for unexploded ordnance (UXO), historic ground contamination, landfill gases and/or asbestos. These potential accidents are likely also to be present during construction in some areas

on the Proposed Development. **Chapter 25: Ground conditions** provides further detail on these potential hazards. The framework described in **Section 28.7** will ensure that any issues identified are accounted for in the design.

External industrial hazards

- 28.10.3 External industrial hazards are events, such as fires, explosions or releases of hazardous substances which could take place in nearby industrial sites and cause serious harm to the Proposed Development.
- 28.10.4 There are no significant industrial developments in proximity to the offshore elements of the Proposed Development. Any subsea infrastructure (including cables and pipelines) has been identified in the vicinity of the offshore wind farm area or export cable. Either crossing or proximity agreements will be reached with the operators of each of these systems, where they are required.
- 28.10.5 The area surrounding the onshore elements of the Proposed Development is predominantly rural, but there are utility systems which are in close proximity or will need to be crossed by the onshore cable corridor. For any works in close proximity to gas pipelines including crossings, the appropriate safe methods of work will be agreed with the pipeline operator and suitable risk assessment undertaken.
- 28.10.6 The HSE in their response to scoping indicated two Major Accident Hazard pipelines and a Major Accident Hazard site. RED has committed to ensuring that the design of the Proposed Development will not be objected to by the HSE, by ensuring that any development in the proximity of hazardous sites which cannot be sited elsewhere is of a suitable type, and the number of people is reduced so far as is reasonably practicable.
- 28.10.7 It is believed that the company which holds the Hazardous Substance Consent, Aerosol Manufacturing plc, no longer exists, and therefore use of the consent would not be valid without a subsequent application to transfer the consent. This will be discussed in further engagement with the HSE and WSSC to determine the status of this site.

Security threat

- 28.10.8 There is the potential for hostile acts against the Proposed Development and the associated workforce, which could occur at any stage of the lifecycle of Rampion 2. Few of these are likely to be severe enough to be considered a major accident, as most instances will be limited to minor theft or vandalism, for example.
- 28.10.9 The Proposed Development is not considered to be a high-risk target for terrorism. There are no large or vulnerable receptor populations associated with the Proposed Development. Attacks on infrastructure is listed on the National Risk Register (Cabinet Office, 2020), but the Proposed Development represents only one producer for the electrical grid, and it is not anticipated that any damage would lead to widespread significant effects.
- 28.10.10 The highest risk (albeit still considered to be not significant) of serious harm is likely to be trespassers in the onshore substation compound, construction

compounds, or offshore foundation/substations who are unaware of the hazards. The Proposed Development will be secured by adequate locks, gates and fencing, and signage will be posted to indicate the presence of either high voltage electrical systems or construction hazards.

- 28.10.11 If other significant security issues arise, then these will be identified and resolved through the framework described in **Section 28.7**.

External interference

- 28.10.12 There is a risk that a third party might disturb and damage the electrical cable in error, which may lead to serious harm to third-parties such as electrocution, either onshore or offshore. The cable will be installed in ducting along the full length with a minimum burial depth of 1.2m standard cover to top of duct onshore and a minimum of 1m depth offshore, which will prevent most accidental impacts. The onshore cable will have cable protection tiles and marker tape which will be used to warn of the presence of high voltage electrical cables. The onshore cable route will be available to utility search companies, who are seeking to construct in the vicinity of the cable.
- 28.10.13 There is the potential for third party transport (marine or aviation) to impact on the Proposed Development or Rampion 2 support vessels during the whole Proposed Development lifecycle. The impacts on navigation of third-party vessels are considered in **Chapter 13: Shipping and navigation**. See also embedded environmental measures C-84 and C-85 in **Table 28-7**. The potential impacts on aviation are described further in **Chapter 15: Civil and military aviation**. The approach taken in those two chapters are considered to represent good practice and therefore the risk of any major accident related to third party transport is not considered to be significant.

28.11 Description of effects: Disasters

- 28.11.1 This section provides a description of the potential disasters which could impact upon the Proposed Development. It describes the type of potential disasters and how the embedded environmental measures described in **Section 28.7** will manage the risk to ensure that there are no significant effects.
- 28.11.2 The risk of adverse weather conditions affecting the construction of the onshore elements of the Proposed Development is limited. For example, there is the potential for flooding of excavations. The design of any temporary works will be designed to account for ground and groundwater conditions (C-75). There will be procedures developed for working in areas liable to flooding (C-117), and for cessation of activities in extreme adverse conditions.
- 28.11.3 The potential for disasters to impact upon the Proposed Development is limited in the operational phase, as there is a limited workforce, especially onshore. The peak workforce population is anticipated to be during the construction and decommissioning phases.
- 28.11.4 During the operation and maintenance phase, there is no fixed or permanent workforce. The potential for a disaster to impact on workers undertaking routine maintenance or ad-hoc repairs is considered to be negligible.

- 28.11.5 Any potential impacts on the welfare of workers due to ambient temperatures or precipitation is considered to be an occupational health and safety covered by compliance with the Management of Health and Safety at Work regulations and not relevant to this aspect.
- 28.11.6 Further detail on dewatering/groundwater and the assessment of flood risk is considered in **Chapter 27: Water environment** and **Appendix 27.2: Flood Risk Screening Report, Volume 4**.
- 28.11.7 For the offshore elements of the Proposed Development, the natural elements which will have the greatest impact on the Proposed Development are high winds and rough seas. These could be a contributing cause and increase the likelihood of a major accident described in **Section 28.9** but are unlikely to be the sole cause. Direct injury to offshore workers could also arise in extreme weather.
- 28.11.8 The design of the Proposed Development will account for all foreseeable weather conditions and potential disasters as part of the framework described in **Section 28.7** covering the onshore and offshore elements of the Proposed Development. Daily weather and sea state forecasts will be studied to assess the conditions before certain work activities are allowed to commence. Some activities such as lifts will not be able to take place in adverse working conditions such as high wind, this will be defined in the procedures and permits which accompany these activities during the construction, operation and maintenance, and decommissioning phases of the Proposed Development.
- 28.11.9 A geological assessment of the seabed will be undertaken as part of the design process to ensure that a suitable foundation is designed for the offshore elements of the Proposed Development which is resistant to scour and other movements in the seabed without compromising the integrity of the structure.
- 28.11.10 The effects of climate change on anticipated weather conditions is described in **Appendix 5.2, Volume 4**.

28.12 Further work to be undertaken for ES

- 28.12.1 The embedded environmental measures described in **Section 28.7** will be developed as the design of the Proposed Development progresses to ensure that the risk of major accidents and disasters is appropriately managed through the Proposed Development lifecycle. These measures will be effective at mitigating the risk of major accidents and disasters throughout the Proposed Development lifecycle, so there will be no significant effects arising.
- 28.12.2 RED will engage with WSCC and HSE to determine the location and the status of the Aerosol Manufacturing plc Major Accident Hazard site.

28.13 Glossary of terms and abbreviations

Table 28-8 Glossary of terms and abbreviations

Term (acronym)	Definition
ALARP	As Low As Is Reasonably Practicable
AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
Baseline	Refers to existing conditions as represented by latest available survey and other data which is used as a benchmark for making comparisons to assess the impact of development.
Baseline conditions	The environment as it appears (or would appear) immediately prior to the implementation of the Proposed Development together with any known or foreseeable future changes that will take place before completion of the Proposed Development.
BAT	Best Available Techniques
CBA	Cost Benefit Analysis
CDM Regulations	Construction (Design and Management) Regulations
CDOIF	Chemical and Downstream Oil Industries Forum
Climate Change	A change in the state of the climate that can be identified (e.g. by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes, to external forcing or to persistent anthropogenic changes in the composition of the atmosphere, ocean or in land use.
Code of Construction Practice	The code sets out the standards and procedures to which developers and contractors must adhere to when undertaking construction of major projects. This will assist with managing the environmental impacts and will identify the main responsibilities and requirements of developers and contractors in constructing their projects.
COMAH	Control of Major Accident Hazards (COMAH) Regulations

Term (acronym)	Definition
Consultation Distances/Zones	<p>HSE is a statutory consultee for planning applications around major hazard sites and major accident hazard pipelines.</p> <p>HSE sets a consultation distance around the major hazard site or major accident hazard pipeline, within which a planning authority must consult HSE over relevant developments which are likely to lead to an increased population around the major hazard.</p>
DCO Application	<p>An application for consent to undertake a Nationally Significant Infrastructure Project made to the Planning Inspectorate who will consider the application and make a recommendation to the Secretary of State, who will decide on whether development consent should be granted for the Proposed Development.</p>
Development Consent Order (DCO)	<p>This is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects, under the Planning Act 2008.</p>
DETR	<p>Department of the Environment, Transport and the Regions</p>
Disaster	<p>A natural occurrence that leads to serious damage to receptors, either immediate or delayed.</p>
DRA	<p>Design Risk Assessment</p>
EA	<p>Environment Agency</p>
Effect resulting from a major accident and disasters	<p>The risk of the major accident or disaster occurring, considering the potential consequences and likelihood of occurrence.</p>
Embedded environmental measures	<p>Equate to 'primary environmental measures' as defined by Institute of Environmental Management and Assessment (2016). They are measures to avoid or reduce environmental effects that are directly incorporated into the preferred masterplan for the Proposed Development.</p>
Environmental Impact Assessment (EIA)	<p>The process of evaluating the likely significant environmental effects of a proposed project or</p>

Term (acronym)	Definition
	development over and above the existing circumstances (or 'baseline').
Environmental Statement (ES)	The written output presenting the full findings of the Environmental Impact Assessment.
ESA	Environmentally Sensitive Area
HAZID	Hazard Identification
HAZOP	Hazard & Operability
HPI	Habitats of Principal Importance
HSE	Health and Safety Executive
HSSE	Health, Safety, Security and Environment
HSWA	Health and Safety at Work etc. Act 1974
IEMA	Institute of Environmental Management and Assessment
Informal consultation	Informal consultation refers to the voluntary consultation that RED undertake in addition to the formal consultation requirements.
LNR	Local Nature Reserve
LWS	Local Wildlife Site
Major accident	An unintended event caused by a man-made activity or asset that leads to serious damage to receptors, either immediate or delayed.
MA&D	Major Accident and Disaster
MCA	Maritime and Coastguard Agency
MCZ	Marine Conservation Zone
MPCP	Marine Pollution Contingency Plan
Nationally Significant Infrastructure Project	Nationally Significant Infrastructure Projects are major infrastructure developments in England and Wales which are consented by DCO. These include proposals for

Term (acronym)	Definition
	renewable energy projects with an installed capacity greater than 100MW.
NNR	National Nature Reserve
NtM	Notice to Mariners
Onshore part of the PEIR Assessment Boundary	An area that encompasses all planned onshore infrastructure.
PEIR Assessment Boundary	The PEIR Assessment Boundary combines the search areas for the offshore and onshore infrastructure associated with the Proposed Development. It is defined as the area within which the Proposed Development and associated infrastructure will be located, including the temporary and permanent construction and operational work areas.
Planning Inspectorate (PINS)	The Planning Inspectorate deals with planning appeals, national infrastructure planning applications, examinations of local plans and other planning-related and specialist casework in England and Wales.
Preliminary Environmental Information Report (PEIR)	The written output of the Environmental Impact Assessment undertaken to date for the Proposed Development. It is developed to support formal consultation and presents the preliminary findings of the assessment to allow an informed view to be developed of the Proposed Development, the assessment approach that has been undertaken, and the preliminary conclusions on the likely significant effects of the Proposed Development and environmental measures proposed.
Proposed Development	The development that is subject to the application for development consent, as described in Chapter 4.
Rampion 1	The existing Rampion Offshore Wind Farm located in the English Channel off the south coast of England.
RED	Rampion Extension Development
SAC	Special Area of Conservation

Term (acronym)	Definition
Scoping Opinion	A Scoping Opinion is adopted by the Secretary of State for a Proposed Development.
Scoping Report	A report that presents the findings of an initial stage in the Environmental Impact Assessment process.
Secretary of State (SoS)	The body who makes the decision to grant development consent.
Serious damage to human populations	Harm which would be considered substantial such as death(s), multiple serious injuries or a substantial number requiring medical attention.
Serious damage to the environment	Loss or significant detriment to populations of species or organisms, valued sites (including designated sites), valued cultural heritage sites, with lower thresholds for high-value or protected species or sites, contamination of drinking water supplies, ground or groundwater, or harm to environmental receptors.
SFAIRP	So Far As Is Reasonably Practicable
Significant effect resulting from a major accident or disaster	A significant effect resulting from a major accident or disaster is the risk of a major accident or natural disaster occurring which would be intolerable, and for which consent should not be given without further risk reduction.
SINC	Site of Importance for Nature Conservation
SNCI	Site of Nature Conservation Importance
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
UK	United Kingdom
Unexploded Ordnance (UXO)	Unexploded ordnance are explosive weapons (bombs, shells, grenades, land mines, naval mines, etc.) that did not explode when they were employed and still pose a risk of detonation, potentially many decades after they were used or discarded.

Term (acronym)	Definition
WSSC	West Sussex County Council

28.14 References

Cabinet Office, (2012). *Chapter 4 Local responder risk assessment duty. Revision to Emergency Preparedness*, s.l.: s.n.

Cabinet Office, (2020). *National Risk Register*, s.l.: s.n.

Chemical and Downstream Oil Industries Forum (CDOIF), (2016). *Guideline - Environmental Risk Tolerability for COMAH Establishments Rev 2*, s.l.: V2.

COMAH Competent Authority, (2016). “ALL MEASURES NECESSARY” – *Environmental Aspects v7*, s.l.: s.n.

Department for Environment, Fisheries and Rural Affairs (Defra), (2011). *Guidelines for Environmental Risk Assessment and Management: Green Leaves III*, s.l.: s.n.

Department of the Environment, Transport and the Regions (DETR), (1999). *Guidance on the Interpretation of Major Accident to the Environment for the purposes of COMAH Regulations*, s.l.: s.n.

Energy Institute, (2015). *Guidelines on environmental management for facilities storing bulk quantities of petroleum, petroleum products and other fuels*, s.l.: 3rd Edition.

Energy Institute, (2017). *Guide to predicting environmental recovery durations from major accidents. Supporting guide to the Environmental risk tolerability for COMAH establishments guideline*, s.l.: s.n.

European Commission, (2017). *Environmental Impact Assessment of Projects, Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)*, s.l.: s.n.

Health and Safety Executive (HSE) & Maritime and Coastguard Agency (MCA), (2019). *Regulatory expectations for emergency response arrangements for the offshore renewable energy industry*, s.l.: OIS 02/2019.

HSE, (2001a). *Principles and guidelines to assist HSE in its judgements that duty-holders have reduced risk as low as reasonably practicable*. [Online] Available at: <http://www.hse.gov.uk/risk/theory/alarp1.htm> [Accessed: 23 June 2021].

HSE, (2001b). *Reducing Risks Protecting People (R2P2)*, s.l.: s.n.

HSE, (2011). *Preventing catastrophic events in construction*, s.l.: RR834.

HSE, (2013). *Managing for Health and Safety*, s.l.: HSG65.

HSE, (2015). *The Control of Major Accident Hazards Regulations 2015*, s.l.: L111.

HSEa, (n.d.) *HSE principles for Cost Benefit Analysis (CBA) in support of ALARP decisions*. [online]. Available at: <http://www.hse.gov.uk/risk/theory/alarpcba.htm> [Accessed: 21 June 2021].

HSEb, (n.d.) *Guidance on ALARP Decisions in COMAH*. [online]
Available at: http://www.hse.gov.uk/foi/internalops/hid_circs/permissioning/spc_perm_37/
[Accessed: 21 June 2021].

HSEc, (n.d.) *Cost Benefit Analysis checklist*. [online]
Available at: <http://www.hse.gov.uk/risk/theory/alarpcheck.htm>
[Accessed: 21 June 2021].

HSE, (n.d.) *ALARP at a glance*. [online]
Available at: <http://www.hse.gov.uk/risk/theory/alarpglance.htm>
[Accessed: 21 June 2021].

HSE, (n.d.) *HSE's Land Use Planning Methodology*, s.l.: s.n.

Institute of Environmental Management and Assessment, (2020). *Major Accidents and Disasters in EIA: A Primer*, s.l.: s.n.

Ministry of Housing, Communities and Local Government, (2019). *National Planning Policy Framework*, s.l.: s.n. [online]. Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf [Accessed: 23 June 2021].

Planning Inspectorate, (2020a). *Scoping Opinion: Proposed Rampion 2 Offshore Wind Farm* [online]. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010117/EN010117-000045-EN010117%20Scoping%20Opinion.pdf> [Accessed: 21 June 2021]

Planning Inspectorate, (2020b). *Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information, and Environmental Statements* [online]. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2017/12/Advice-note-7.pdf> [Accessed: 21 June 2021]

Planning Inspectorate, (2017). *Annex G - The Health and Safety Executive - Planning Inspectorate Advice Note 11*, s.l.: s.n.

Rampion Extension Development (RED), (2020). *Rampion 2 Offshore Wind Farm Environmental Impact Assessment Scoping Report* [online]. Available at:
<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010117/EN010117-000006-EN010117%20-%20Scoping%20Report.pdf> [Accessed: 21 June 2021]

The Major Accident Off-Site Emergency Plan (Management of Waste from Extractive Industries) (England and Wales) Regulations 2009. [Online]. Available at:
<https://www.legislation.gov.uk/uksi/2009/1927/contents/made> [Accessed: 21 June 2021]

UK Government, (n.d.) *Environmental Impact Assessment*. [online]
Available at: <https://www.gov.uk/guidance/environmental-impact-assessment>
[Accessed: 21 June 2020].

