

17 MAJOR ACCIDENTS AND DISASTERS

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17.1 Introduction

This chapter provides consideration and assessment of expected significant adverse effects of the Proposed Development on the environment deriving from the vulnerability of the Proposed Development to risks of either relevant major accidents and/or disasters which are relevant to the Proposed Development concerned.

Based on professional judgement, major accidents or disasters are events or situations that have the potential to affect the Proposed Development causing immediate or delayed serious damage to one or more of the following: human health; welfare; and the environment. This assessment considers the risks of major accidents and disasters (hereafter referred to as major events) during construction and operation caused by natural hazards or manmade hazards (including operational failure).

In the context of this chapter, major events are events which rarely occur due to the mitigation, management or regulatory controls implemented to prevent them. By definition, if a major event were to occur the likely worst case would always be a major adverse effect.

This chapter should be read in conjunction with other ES Chapters to provide a broader environmental context on the risks associated with these major event types. These chapters also outline the proposed measures to prevent or mitigate significant effects. This chapter should also be read in conjunction with the Volume III, Appendix 2.2 OCEMP which highlights emergency procedures. The OCEMP describes the arrangements in place to manage the potential environmental impacts of construction and identifies measures to be taken to avoid and / or in the event of an environmental incident or emergency. All construction staff, including sub-contractors, will receive structured training on the requirements of the OCEMP and final CEMP and the associated environmental control plans, as developed. They will also be required to attend a site induction which will include the key environmental issues identified for the Proposed Development. The briefing will emphasise the methods and working practices which must be employed to protect the environment, including emergency clean up procedures (as outlined in Appendix H Outline Emergency Clean Up Plan) for reporting and dealing with environmental incidents. Records of training and attendance will also be retained.

17.2 Methodology

17.2.1 Legislative, Policy Framework and Guidance

The broad legislative and policy framework relevant to environmental assessment of the Proposed Development is set out in Chapter 1 Introduction of this ES. This section summarises the legislation, policy and guidance applicable to the major events assessment.

17.2.1.1 The EIA Directive 2014/52/EU

The requirement to consider the vulnerability of a project (or Scheme) to either major accidents or disasters or both results from the 2014 amendment to the EIA Directive (2014/52). The Directive requires:

“a high level of protection of the environment, precautionary actions need to be taken for certain projects which, because of their vulnerability to major accidents, and/or natural disasters (such as flooding, sea level rise, or earthquakes) are likely to have significant adverse effects on the environment.”

Reg 5(2) and (3) of the EIA Regs:

5(2) The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of the proposed development on the following factors—

(a) population and human health;

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC(16) and Directive 2009/147/EC(17);

(c)land, soil, water, air and climate;

(d)material assets, cultural heritage and the landscape ; and

(e)the interaction between the factors referred to in sub-paragraphs (a) to (d).

(3) The effects referred to in paragraph (2) on the factors set out in that paragraph shall include—

(a)the operational effects of the proposed development, where the proposed development will have operational effects; and

(b)the expected effects deriving from the vulnerability of the proposed development to risks of major accidents or disasters that are relevant to the proposed development.

Schedule 4 para 5 of the EIA Regs –

5. A description of the likely significant effects of the development resulting from, inter alia:...

(d)the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);...

The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development...

Schedule 4 para 8 of the EIA Regs:

8. A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks to major accidents and/or disasters which are relevant to the development concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of the Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.

17.2.1.2 European Union Guidance 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)

The 'European Union Guidance 2017 - Environmental Impact Assessment of Projects, Guidance on the preparation of the Environmental Impact Assessment Report' provides useful guidance on the key changes from Directive 2011/92/EU as amended by Directive 2014/52/EU. It states that two key considerations relating to major events emerge under the new directive:

- The Project's potential to cause either accidents or disasters or both; and,
- The vulnerability of the Project to either potential disasters or accidents or both.

The guidance goes on to state that, after risks have been identified and assessed, measures to control and manage their significant impacts should then be taken, to ensure compliance with existing minimum prevention standards, safety requirements, building codes and improved land use planning, as well as others. It also states that measures should be captured in a coherent risk management plan that also includes sufficient preparedness and emergency planning measures¹.

17.2.1.3 Institute of Environmental Management and Assessment (IEMA), Major Accidents and Disasters in EIA: A Primer, September 2020

This primer from IEMA aims to increase appreciation of the major accidents and/or disasters EIA topic and its application. The document suggests an assessment methodology based on known current practice within the UK to date and identifies key terminology that can be used. It has been structured around a typical assessment

¹ Emergency clean up procedures (as outlined in Volume III, Appendix 2.2 OCEMP Appendix H Outline Emergency Clean Up Plan) for reporting and dealing with environmental incidents are included in the ES.

approach and offers a proportionate method for considering major accidents and/or disasters through screening, scoping and assessment. Reference has been made to this document and the advice contained within in it in this Chapter.

17.2.2 Assessment Methodology

The purpose of this Chapter is to identify expected significant effects of the Proposed Development to the environment, which could derive from its vulnerability to risks of major accidents or natural disasters. These have been considered during the construction, operation and maintenance phases of the Proposed Development.

A methodology was adopted to systematically identify potential risks, pathways for adverse effects to occur and suitable controls (for identified risks). This was broadly based on accepted technical risk assessment methods which allow the identification of risks, pathways, sensitive receptors and if required barriers / controls to mitigate risk to an acceptable level.

A review was undertaken of baseline conditions to identify existing facilities or natural features or scenarios (such as flooding) which could lead to risk events with an associated major accident or hazard in combination with the Proposed Development. These developments were then screened to identify if any specific risk events required further consideration. This process also identified those which could be screened out as not having a significant risk to retain proportionality and focus within the assessment. The screening process² considered if the risk event then had a pathway and receptor so that if it occurred it would be expected to result in significant effects of the Proposed Development on the environment:

- The pathway is the route by which the risk event can reach the receptor, for example via the spillage of materials to a watercourse; and
- The receptor, which is the specific component of the environment that could be adversely affected, if the source reaches it (e.g. the watercourse).

The assessment then considered what activities could result in an adverse impact during construction / operation/ maintenance and what barriers or embedded mitigation are in place to prevent the source pathway receptor risk from occurring. Finally, the assessment sought to identify any 'escalation factors' which could compromise the integrity of embedded mitigation and therefore any significant residual risks and accordingly the need for further mitigation / monitoring.

Once operational, the overhead line will become a network asset and form part of the wider network. Decommissioning is not envisaged, however should the overhead line be required to be decommissioned, all associated structures and materials would be recovered and items recycled with the site returned to its original use. Decommissioning impacts will be the same or lesser than the impact of construction.

17.2.2.1 Assessing Significance of Effect

In the context of this Chapter, typical methods employed within EIA to define significance are not applicable. By definition, a major accident or disaster would be a significant effect on the environment. Accordingly, any risks that could result in a major accident or disaster without suitable mitigation, management or regulatory controls in place will be assessed as significant.

² The level of effort required at the screening stage for major accidents and/or disasters is likely to be minimal. During screening it should be sufficient to identify if a development has a vulnerability to major accidents and/or disasters and to consider whether a development could lead to a significant effect. Consideration was given to: Is the development a source of hazard itself that could result in a major accident and/or disaster occurring? Does the development interact with any sources of external hazards that may make it vulnerable to a major accident and/or disaster? If an external major accident and/or disaster occurred, would the existence of the development increase the risk of a significant effect to an environmental receptor occurring?

17.3 Baseline Environment

17.3.1 Baseline Conditions

A review was undertaken of baseline conditions to identify existing facilities or natural features or scenarios (such as flooding) which could lead to risk events with associated major accident or hazard in combination with the Proposed Development. These developments were then screened to identify if any specific risk events required further consideration. This process also identified those which could be screened out as not having a significant risk to retain proportionality and focus within the assessment.

The baseline assessment identifies features (or sources of risk) within the existing environment that could be sources for major accidents and hazards comprising:

- existing infrastructure and the built environment;
- baseline major accident and natural disaster risks (that exist with or without the Proposed Development).

The wider ES topic baselines have been used to consider sensitive receptors at risk from the effects of the Proposed Development deriving from its vulnerability to major accidents or disasters for instance:

- members of the public and local communities;
- the natural environment, including biodiversity, land and soil quality, air quality, surface and groundwater resources and landscape.

The main risk sources identified have been divided into the following categories:

- Existing infrastructure and facilities (on both how they may impact the Proposed Development and how the Proposed Development may impact them); and
- Wider natural disaster and hazard risks – for instance flood risk.

17.3.1.1 Existing Infrastructure

The Proposed Development connects the existing NIE Networks Strabane substation to a proposed substation building at the mine site; the substation at the mine site is proposed as part of planning application LA10/2017/1249/F.

The Proposed Development comprises of an underground cable connected from the existing 110/33kV Strabane main substation which extends into an overhead line between Hollyhill and Curlyhill Road (from pole 2001). From this point, the overhead line route generally follows a south easterly direction which is undergrounded at various locations, mainly along public roads. The overhead line route terminates at pole 2322 before being undergrounded along Crockanboy Road and connecting into a substation at the Curraghinalt mine.

Infrastructure features which either cross the Proposed Development alignment, or are within close proximity include:

- road infrastructure;
- telecommunication infrastructure; and
- electricity transmission.

Figure 17.1 shows the location of the Proposed Development and its setting in the rural landscape.



Figure 17.1: Site Location

The proposed 33kV connection is c.37.9 km in length, comprising of c.26.9 km of overhead line (OHL) supported by single and double wooden pole sets and 11 km of underground cabling (UGC).

17.3.1.2 River Flooding

The OHL and UGC traverses various watercourses that are both designated and undesignated in accordance with the Drainage (Northern Ireland) Order 1973. These include Foul Glen Burn, Owenreagh Burn, Ballykeery Burn, Legnavadder Burn, Glashygalagan Burn, Letterbrat Burn, Trinnamadan Burn, Glenelly River and Owenkillew River. In line with the principles set out in Planning Policy Statement 15, a 1% AEP event was considered when assessing the flood river from rivers. The OHL and UGC traverses areas of present day fluvial floodplain.

17.3.1.3 Flooding from Climate Change

The 2080 strategic flood map indicate that both the proposed OHL and UGC traverse areas of climate change fluvial floodplain.

17.4 Impact Assessment

17.4.1 Assessment of Construction Phase Effects

Major accidents and natural disasters to which the Proposed Development may be vulnerable during construction and the outcomes of the assessment are set out in this section.

All risk events identified have been considered and are presented in Table 17.1.

The table also includes the management and mitigation measures embedded in the Proposed Development to reduce these risks to as low as reasonably practicable.

Table 17.1: Construction Phase Screening, Risk events and Mitigation and Management Measures

Feature	Source of Hazard	Consequence	Embedded Mitigation & Risk Management	Additional recommendation to reduce risk further
Existing Electrical Overhead Line (OHL) electrical distribution infrastructure	Construction plant collision risk or incidents during the processing of undergrounding.	Potential for injuries / fatality	No building or unsuitable planting in the vicinity of the OHL.	No further requirements
Additional HGV traffic on road network	Additional HGV traffic mixing with other road users.	Potential injury or fatality to a member of the public	Note that full road closures are assumed in order to perform a robust and worst case assessment, but may not be necessary and will be avoided where possible through the use of single lane closures, to be agreed with DfI Roads. Road closures may run concurrently or consecutively and will be agreed through consultation with DfI Roads. Estimated durations for road closures to facilitate. The detailed programme for underground cable sections (Please refer to Chapter 2 Project Description, section 2.5.2) installation will be agreed in consultation with DfI Roads in order to minimise any traffic disruption, further assessment of traffic is provided in Chapter 15 of the ES..	No further requirements
Flood Risk	Presence of construction materials, equipment and potential contaminants.	Potential release of contaminants onto environmental receptors (for instance surface water (rivers) or ground water) outside construction site	Mitigation measures will be adopted as set out in the Outline CEMP. An emergency response plan for the construction phase to minimise the consequences should the risk occur – this is set out in the CEMP and will be adopted by the appointed contractor. Please refer to Volume III, Appendix 2.2 Outline CEMP.	No further requirements

17.4.2 Assessment of Operational & Maintenance Phase Effects

Major accidents and natural disasters to which the Proposed Development may be vulnerable during operation (and maintenance) and the outcomes of the assessment are summarised in Table 17.2. Each specific "area" of the Proposed Development has been considered.

The table also includes the management and mitigation measures embedded in the Proposed Development to reduce these risks to as low as reasonably practicable. In all cases, compliance with legal and regulatory requirements is assumed as outlined in the Embedded Mitigation section.

Table 17.2: Operational Phase Screening, Risk events and Mitigation and Management Measures

Feature	Source of Hazard	Consequence	Embedded Mitigation	Additional recommendation to reduce risk further
Flood Risk	Extreme Weather (fluvial and pluvial events).	Potential damage to asset	Maintenance will also be required to ensure structural integrity. Once the circuit is	No further requirements

			commissioned it will be subject to inspections from the ground every three years.	
Flood Risk	Land use change has potential to increase flood pattern in area.	Potential secondary effects on offsite environmental or anthropogenic receptors.	Maintenance will also be required to ensure structural integrity. Once the circuit is commissioned it will be subject to inspections from the ground every three years. In consideration of Proposed Development which may impact upon the water environment, pollution prevention measures are set out within the Volume III, Appendix 2.2 OCEMP will be applied where poles occur within close proximity to watercourses (<10m).	No further requirements
Fire risk	Operations within industrial land use facilities	Potential risk to human health/loss of life	All materials will be suitably fire rated in accordance with regulations and guidance. All operations will be undertaken in accordance with regulatory requirements.	No further requirements

17.4.3 Assessment of Decommissioning Phase Effects

Once operational, the OHL will become a network asset and form part of the wider network. Decommissioning is not envisaged, however should the overhead line be required to be decommissioned the associated structures and materials would be recovered and items recycled with the site returned to its original use. ‘Should the underground cable be required to be decommissioned, it would be disconnected from the circuit breakers or poles to which it is connected, safely insulated using pot end joints and abandoned in situ. As a result, the impact of decommissioning the underground cable would be significantly less than the impact of installation.’

17.4.4 Cumulative Effects

It is important to consider effects, not just in isolation, but also cumulatively, as this may show that individually analysed impacts can become significant when they are added together, or with, other effects. The co-existence of impacts may increase or decrease their combined impact. Impacts that are considered to be insignificant, when assessed individually, may become significant when combined with other impacts. Cumulative effects can occur at different temporal and spatial scales. The spatial scale can be local, regional or global, while the frequency or temporal scale includes past, present and future impacts on a specific environment or region. Other projects can cumulatively increase the use of the road network (both during construction and operational phases) but the management and control of the risk of accidents within this context is controlled by the design standards of the road and the governing authority (DfI Roads). The Proposed Curraghinalt Mine Development is a proposed development that can be considered to have cumulative relationship due to the location and proposed works³.

Specifically, in relation to the Proposed Curraghinalt Mine Development, the following requirements in respect of accident prevention in line with industry good practice are proposed and are:

- An Accident Prevention Policy;
- A safety management system to implement the policy; and
- An internal emergency plan, specifying the measures to be taken onsite.

³ •Underground cable section F: c 1.9km (of 4.23km) from terminal pole number 2322, located in agricultural lands adjacent to Crockanboy Road to the entrance to proposed Curraghinalt mine. Should road closure be required on B Class roads, restricted working hours from 9am to 4pm will apply, with the road remaining open to all traffic outside these hours. Estimated road closure duration of up to 2.5 months.

An Accident Prevention Policy will be in place prior to the commencement of the construction phase of the Proposed Curraghinalt Mine Development. For the operational phase the Mine development proposes to establish, implement and maintain controls needed to meet health and safety requirements and implement actions.

In summary, when considering the Proposed Development in combination with other proposed and consented wind farm related overhead line and electrical connections developments within 5km of the Proposed Development there will be no significant cumulative impacts.

17.4.5 Interactions

The EIA Regulations require that the EIA identifies, describes and assesses the direct and indirect significant effects of the Proposed Development on population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and landscape and the interaction between these factors, arising from the vulnerability of the Proposed Development to major accidents or disasters that are relevant to the Proposed Development. With regard to this Proposed Development, there are interactions with Chapter 10 Flood Risk, Chapter 11 Population and Human Health, Chapter 13 Climate & Greenhouse Gases and Chapter 15 Traffic.

17.4.6 Transboundary

Although a portion of the Proposed Development near Strabane will be close to the international boundary with the Republic of Ireland the study area for Major Accidents and Disasters assessment does not extend across the border. Therefore, it is judged that there will be no predicted transboundary effects on the Major Accidents and Disasters as a result of the Proposed Development.

17.5 Mitigation

17.5.1 Embedded Mitigation

The mitigation required to manage the potential major accident or natural disaster risks are either integrated into the design of the Proposed Development (meaning the construction of above ground 33kV overhead line supported by wooden poles and underground 33kV cable laid below ground level in ducts – Chapter 2 Project Description details all aspects of the design) or considered to be a regulatory or industry standard practice requirement and thus considered ‘embedded’ mitigation. The proposed works will be undertaken by the Statutory undertaker (or approved contactor) and will be controlled by standard operating practices and managed in line with appropriate regulations.

An outline CEMP (Volume III, Appendix 2.2) has been produced as part of the supporting documentation for the Proposed Development, this includes an emergency response plan (Appendix H Outline Emergency Clean Up Plan).

17.6 Summary of Effects

17.6.1 Reference to Other Chapters

Environmental effects associated with unplanned events that do not meet the definition of major accidents and/or natural disaster (e.g. minor leaks and spills that may be contained within construction sites) are addressed in the topic Chapters and not in this Chapter.

17.6.2 Residual Effects

There needs to be a general acceptance when conducting a major accidents and/or disasters assessment that some risks, however unlikely, may still occur. Mitigation is therefore identified pre-event and post-event to reduce the effects to an acceptable level. For those risks that cannot be completely designed-out, emergency plans are available to provide the response in order to minimise the significance of any impacts.

It is considered that there will not be any likely significant environmental effects arising from the vulnerability of the Proposed Development to major accidents and natural disasters, please refer to section 17.4 of this chapter for the assessment of effects.

17.7 References

Institute of Environmental Management and Assessment (IEMA), Major Accidents and Disasters in EIA: A Primer, September 2020

SRK Consulting U7511 2020 Waste Management Plan – Main Report; FEI2_App B3_Mine Waste Management Plan (2020b).docx October 2020