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6.4 Environmental Statement
Appendix 4.3 Major Accidents and
Disasters Legislation and Methodology

Planning Act 2008

APFP Regulation 5(2)(a)
Infrastructure Planning (Applications: Prescribed Forms and
Procedure) Regulations 2009

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The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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6.4 Environmental Statement Appendix 4.3 Major Accidents and Disasters Legislation and Methodology

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1 Major accidents and disasters legislation and methodology

1.1 Legislation

- 1.1.1 Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations)¹. requires “A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned” to be included in the Environmental Statement (ES).
- 1.1.2 The design, management, operation and maintenance of the scheme must comply with the following UK legislation:
- Health and Safety at Work etc. Act 1974 (HSWA). This legislation places general duties on employers, people in control of premises, manufacturers and employees. Health and safety regulations made under this Act contain more detailed provisions. The Act provides the framework for the regulation of industrial health and safety in the UK. 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.
 - The Management of Health and Safety at Work Regulations 1999. These regulations generally make more explicit what employers are required to do to manage health and safety under the HSWA.
 - Construction Design and Management (CDM) 2015 Regulations. These regulations place specific duties on clients, designers and contractors, so that health and safety is taken into account throughout the life of a construction project from its inception to its subsequent final demolition and removal. Under CDM regulations, designers have to 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.
- 1.1.3 In broad terms, risks associated with major accidents and disasters will be identified, assessed and mitigated during the design, construction, operation and maintenance of the scheme. The legislation described sets out the requirement, duties, and in some cases establishes the mechanisms for doing this.
- 1.1.4 In addition to the other regulations described in 1.1.2, the scheme is also being designed and its implementation guided by other industry standards and codes, many of which are mandatory. These require infrastructure and systems to be designed so that risks to people and the environment are either eliminated or reduced to levels that are considered acceptable.

1.2 Methodology

- 1.2.1 To address the requirements of the EIA Regulations, the factor of major accidents and disasters has been assessed. In considering the elements of vulnerability, professional judgement has been applied to develop scheme specific definitions

of major events and to determine the overall pre and post-mitigation consequence rating of each of the major events.

- 1.2.2 Major events that are relevant to and can affect a project, both man-made and naturally occurring, were identified. Where major events were identified, the potential for any change in the assessed significance of the scheme on relevant environmental topics was described in qualitative terms and likely mitigation measures included as part of the assessment.
- 1.2.3 The potential receptors of impacts resulting from major events are reported in the relevant topic chapters of the ES, and as such major events is not included as a standalone chapter. Any consequences for receptors are reported in the applicable topic chapters as appropriate.
- 1.2.4 With regards to the methodology, the assessment evaluates the potential for significant effects (during construction and operation) of major accidents and disasters following a three-stage approach:

Stage 1: Long list

- 1.2.5 A long list of possible major events ('risks') was developed. This list drew upon a variety of sources, including the UK National Risk Register of Civil Emergencies (2017), the scheme risk register and the scheme design hazard assessment log.
- 1.2.6 In general, major events relating to the scheme fall into three categories:
- Events that could not realistically occur, due to the type of scheme or its location.
 - Events that could realistically occur, but for which the scheme, and associated receptors, are no more vulnerable than any other development.
 - Events that could occur, and to which the scheme is particularly vulnerable, or which the scheme has a particular capacity to exacerbate.
- 1.2.7 The aim of the screening process was to identify major events which fall into the third category.
- 1.2.8 The assessment therefore typically focused on low likelihood but potentially high consequence eventsⁱⁱ. This screening stage included input from a number of topic specialists whose topics are most likely to interact with major events.
- 1.2.9 For each identified major event, the long list details the relevance of the major event to the scheme and the potential receptors. If the major event was considered relevant to the scheme, it is indicated to be taken forward to the short list for further consideration.
- 1.2.10 Risks were screened out if:
- There is no source-pathway-receptor linkage.
 - The receptor is not within scope, as defined through scoping.
 - The likelihood and consequences are as follows:
 - high likelihood/high consequence – this level of risk is considered unreasonable to the scheme and therefore is assumed designed out or managed;
 - low likelihood/low consequence – this does not constitute a major event and therefore can be screened out; and

- high likelihood/low consequence – this does not constitute a major event and therefore can be screened out.

Stage 2 Short list screening

- 1.2.11 A screening exercise was undertaken to review the long list of major events and to consider their relevance to the scheme, and whether they should be given further consideration.
- 1.2.12 For each major event, the short list details:
- a description of the relevance of the risk event to the scheme;
 - the potential receptors;
 - the relevant phases of the scheme the event could affect;
 - the environmental receptor category or categories that could be impacted if the major event were to occur;
 - the reasonable worst-case consequence if the major event were to occur;
 - any mitigation for the major event currently embedded within the scheme through legislation, standards, policy and other measures; and
 - a conclusion on whether each risk is considered further throughout the design process. If a risk is already managed to 'as low as reasonably practicable', they are not assigned to be considered further. The results of this further investigation are reported in the relevant chapters of the ES.
- 1.2.13 The level of consequence of the risk of a major event was determined through several factors to identify potentially significant effects. These are:
- the **geographic extent** of the effects. Effects beyond the scheme boundaries are more likely to be considered significant;
 - the **duration** of the effects. Effects which are permanent (i.e. irreversible) or long lasting are more likely to be considered significant;
 - the **severity** of the effects in terms of number, degree of harm to those affected and the response effort required. Effects which trigger the mobilisation of substantial civil emergency response effort are more likely to be considered significant;
 - the **sensitivity** of the identified receptors; and
 - the **effort required to restore the affected environment**. Effects requiring substantial clean-up or restoration efforts are more likely to be considered significant.

Stage 3: Short list

- 1.2.14 Where further design mitigation is unable to remove the potential interaction between a major event and a particular topic, the relevant ES chapter identifies the potential consequence for receptors covered by the topic and gives a qualitative evaluation of the potential for the significance of the reported effect to be increased as a result of a major event.
- 1.2.15 A general guideline for screening is that risks can be screened out if:
- There is no source-pathway-receptor linkage.
 - The receptor is not within scope, as defined through scoping.
 - The consequence does not meet the criteria of 'serious damage' and therefore, the risk is not a potential major accident or disaster.

- The consequence and likelihood of the risk is high, such that it is considered unreasonable to the scheme, therefore is designed out or managed.

1.3 Sources

1.3.1 The long list of possible major events was developed using a variety of sources, including the following:

- UK National Risk Register of Civil Emergenciesⁱⁱⁱ;
- Project risk register; and
- Project Construction, Design and Management (CDM) risk register.

1.4 Assumptions and exclusions

- 1.4.1 There is no recognised standard methodology for the assessment of major accidents and disasters. A number of methodologies have been presented such as the DMRB LA 104 Environmental Assessment and Monitoring^{iv}, the Institute of Environmental Management and Assessment (IEMA)^v, and a methodology developed by Arup^{vi} which follows a risk assessment using a source-pathway-receptor based approach. This together with professional judgement and experience has been used to undertake and inform the assessment.
- 1.4.2 The risk registers used to compile the long list were current and correct at the time of producing the long list.
- 1.4.3 Climate projections included in the long list are those from ES Chapter 14 Climate (Document Reference 6.2).
- 1.4.4 It is considered reasonable and proportionate to exclude certain receptor groups from the outset. Construction workers, as a receptor, have been excluded from the assessment, because existing legal protection is considered to be sufficient to reduce any risk from major events to a reasonable level. Legislation in force to ensure the protection of workers in the workplace includes:
- Construction (Design and Management) (CDM) 2015 Regulations;
 - The Management of Health and Safety at Work Regulations (1999);
 - The Workplace (Health, Safety and Welfare) Regulations 1992; and
 - Health and Safety at Work etc. Act 1974 (HSWA).
- 1.4.5 Another potential source of major events related to the scheme is road traffic accidents during its operation. These can clearly impact on people through fatalities and serious injury, but can also impact on the environment, through the spillage of fuel and hazardous loads. The Combined Modelling and Appraisal Report (Document Reference 7.6) states that “The scheme is forecast to lead to a large reduction in the number of Killed or Seriously Injured (KSI) casualties, with 66 fewer deaths forecast over the 60 year appraisal period.”
- 1.4.6 The Environmental Impact Assessment considers the risk of spillages as part of the assessment of road drainage and the water environment, however, the potential for such incidents to affect people as receptors under the topic of human health, is not considered further.
- 1.4.7 Major events considered at the earliest stage to be irrelevant to the scheme are excluded from the long list, for example military incidents.

Endnotes and References

ⁱ Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

ⁱⁱ Arup (2017) EIA Toolkit Major Accidents and Disasters. Available at:

<https://www.iema.net/assets/uploads/Webinar%20presentations/2017%2007%2013%20MA&D%20Arup%20IEMA%2013.07.17.pdf>

ⁱⁱⁱ National Risk Register (NRR) of Civil Emergencies – 2017 Edition available at

<https://www.gov.uk/government/collections/national-risk-register-of-civil-emergencies>

^{iv} Highways England (August 2020) DMRB LA 104 - Environmental assessment and monitoring.

Available online: <https://www.standardsforhighways.co.uk/dmrbs/search/0f6e0b6a-d08e-4673-8691-cab564d4a60a>

^v Available online: <https://www.iema.net/event-reports/2017/07/13/major-accidents-and-natural-disasters-in-eia/>

^{vi} Arup (2017) EIA Toolkit Major Accidents and Disasters. Available at:

<https://www.iema.net/assets/uploads/Webinar%20presentations/2017%2007%2013%20MA&D%20Arup%20IEMA%2013.07.17.pdf>