



IEMA Webinar:

# Launch of IEMA Primer on Major Accidents and Disasters in EIA

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Rufus Howard (IEMA), Andy Mitchell (Arup), Joss Watson (Arup), Elisha Hearn (Arup), Laura Dugdale (WSP), Colin Chambers (WSP)



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**Andy  
Mitchell**

Associate  
Arup

[iema.net](http://iema.net)



**Joss  
Watson**

Senior  
Consultant  
Arup



**Elisha  
Hearn**

Consultant  
Arup



**Laura  
Dugdale**

Associate  
WSP



**Colin  
Chambers**

Technical  
Director  
WSP



**Dr Rufus  
Howard**

Impact  
Assessment  
Policy Lead  
IEMA



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# Webinar slides and recording

This webinar is being recorded. The recording and presentations will be made available for IEMA members on [iema.net](https://iema.net) within 48 hours of the webinar.

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# Q&A

Send in your questions as we go through the session – we'll have plenty of time after the presentation.





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## Major Accidents and Disasters in EIA: A Primer

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# Context

## Regulatory context

Major accidents and/or disasters was a new EIA topic introduced by the 2014/52/EU EIA Directive (the EIA Directive).

The EIA Directive was transposed into UK legislation in 2017, including the Town and Country Planning (EIA) Regulations 2017 (devolved between England, Wales, Scotland and Northern Ireland), and the Infrastructure Planning (EIA) Regulations 2017.

## The EIA Regulations require:

*‘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...**’ (Schedule 4, Paragraph 8)*

The underlying objective of the assessment is to ensure that appropriate precautionary actions are taken for those developments 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.’*

*(Paragraph 15 of Directive 2014/52/EU)*



**Major accident** - Events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events.

**Disaster** - May be a natural hazard (e.g. earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident.



- **Screening**

- Identifying if a development falls within the definition of EIA development under the EIA Regs, by virtue of the likelihood of significant effects from major accidents and/or disasters.

- **Scoping**

- Deciding if a major accidents and/or disasters assessment should be scoped in or out of the EIA.
- If scoped in, how to set out a proposed methodology as part of a scoping report.

- **Assessment**

- Key steps to enable practitioners to undertake an assessment and identify any potential significant effects that require further mitigation.
- Understanding risk management options as part of the process.

- **Appendices**

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## Major Accidents and Disasters in EIA: A Primer

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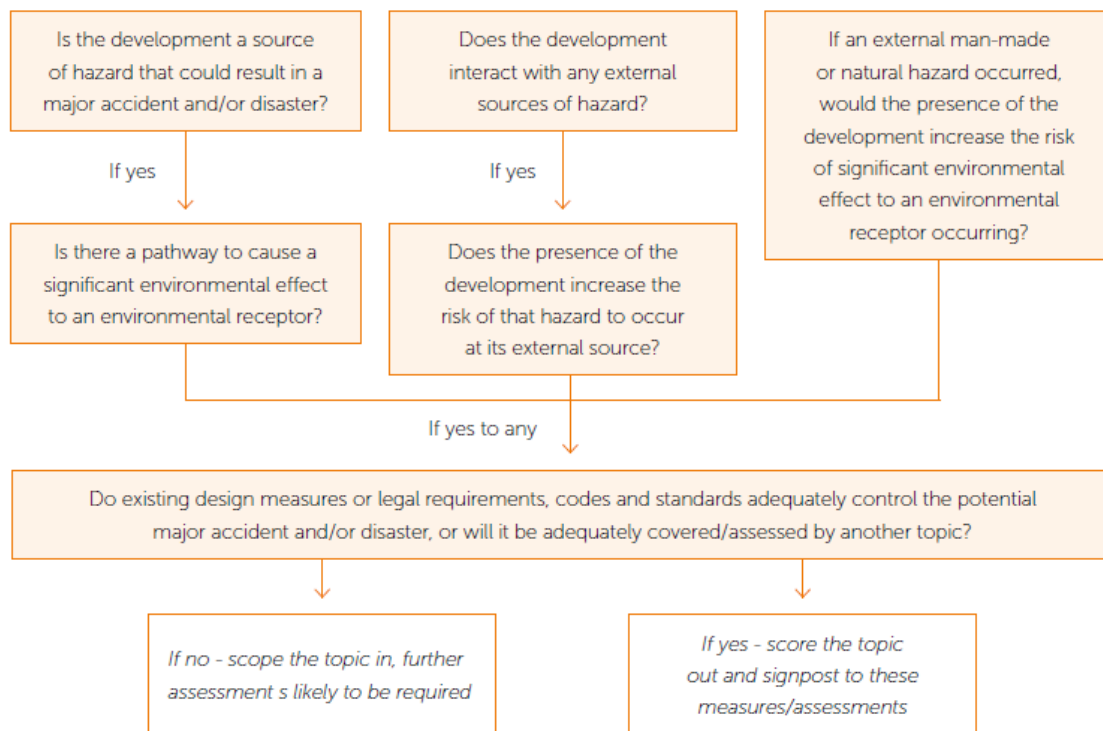
# Screening

1. Is the development a source of hazard itself that could result in a major accident and/or disaster occurring?
2. Does the development interact with any sources of external hazards that may make it vulnerable to a major accident and/or disaster?
3. 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?





# Scoping

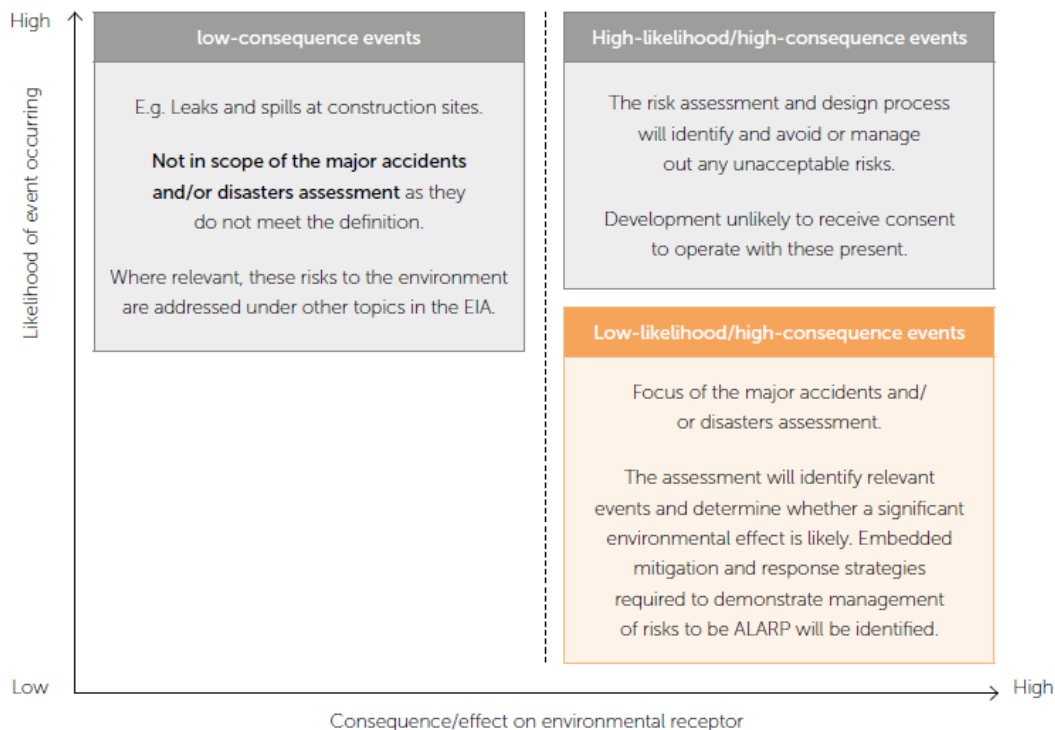


**Baseline** – existing sources of risk assessment or other relevant studies e.g. CDM Risk Register. Consult with your development team, client and stakeholders to fully agree the extent of baseline information available and to be used.

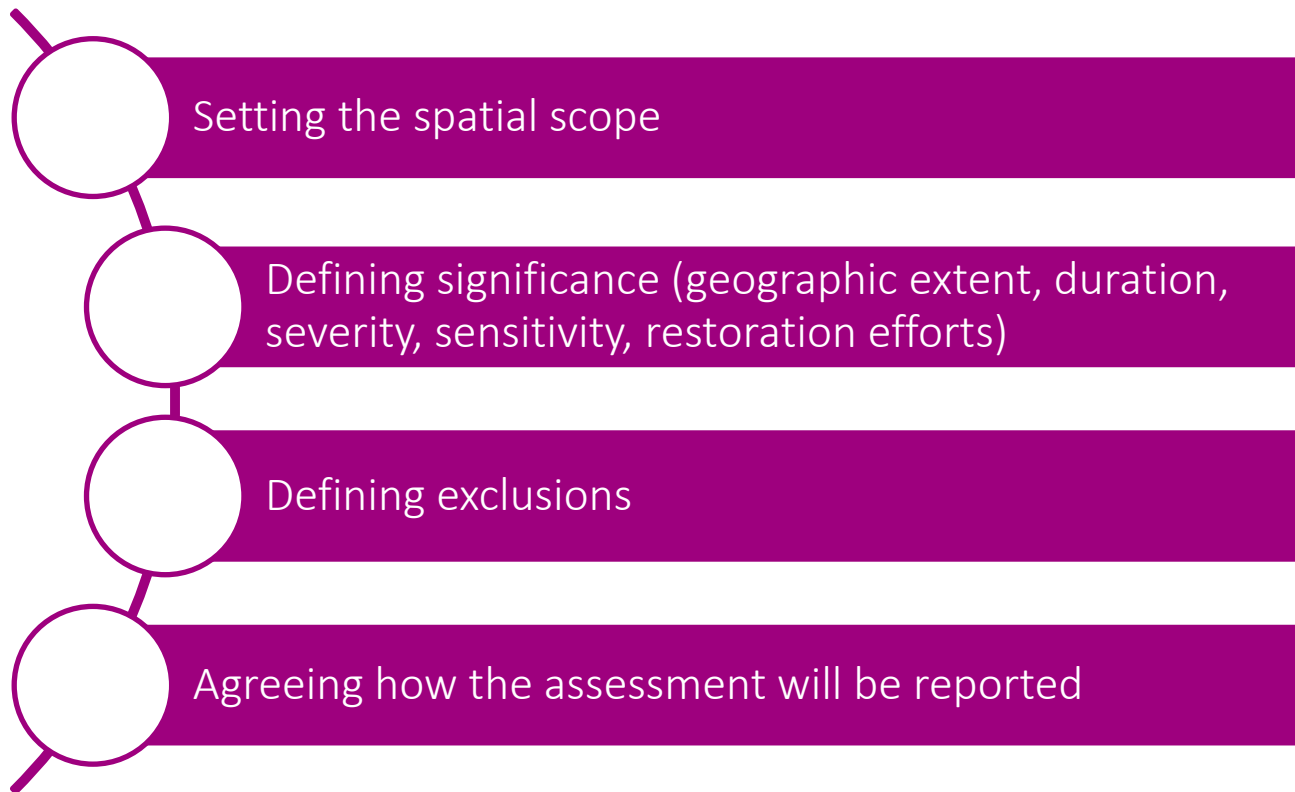
**Receptors** – Consultation with the development team and other EIA topic leads. Dependent on scale of development might be appropriate to group receptors

**Proportionate assessment** - The assessment will typically focus on low likelihood but potentially high consequence events







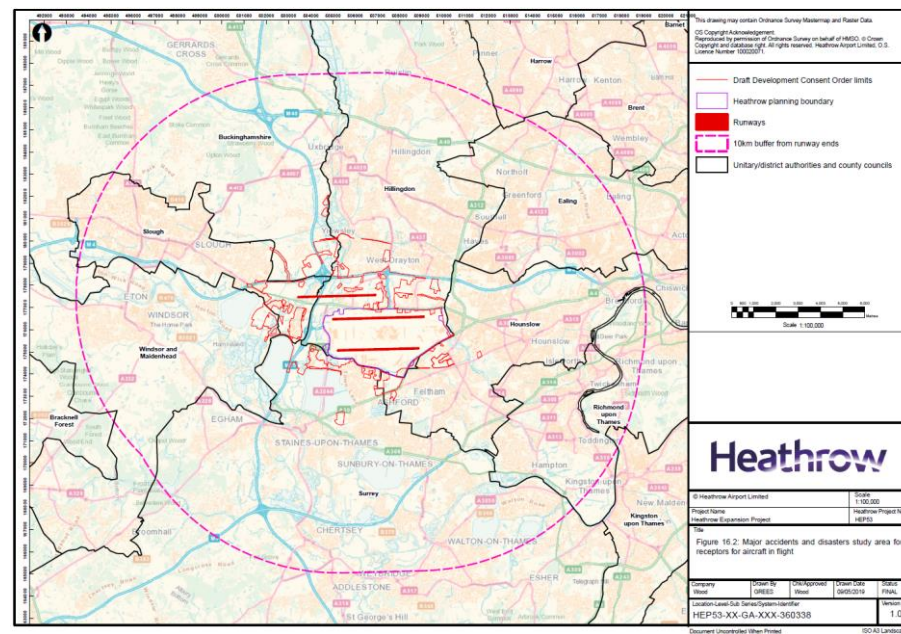
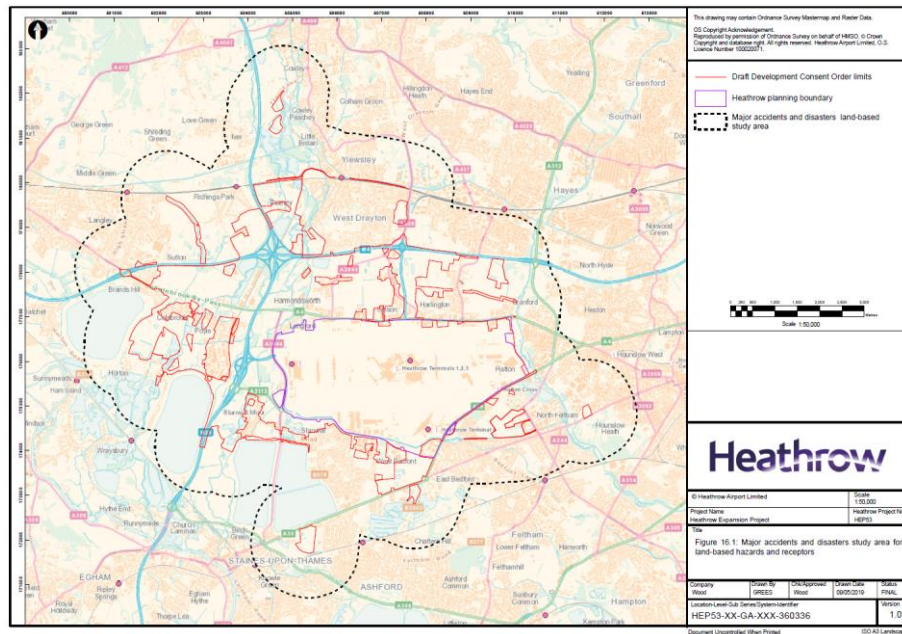


## Heathrow Expansion – Major Accidents & Disasters

- Completed Scoping Report, received Scoping Opinion and consulted on Preliminary Environmental Information Report before Project was paused in early 2020
- Heathrow airport already operates as one of the busiest 2-runway airports in the world, and therefore the MA&D assessment needed to be set out in the context of Heathrow's extensive day-to-day regulation and risk management processes
- Further complexity for MA&D assessment came from interface with Airspace Change Process, which whilst occurring at the same time as the Expansion project, was a separate consent and looking to amend the airspace (flightpaths) for Heathrow airport

## Heathrow Expansion – Major Accidents & Disasters: scoping and study areas

- At Scoping (Spring 2018) the project demonstrated Heathrow is an operating airport and existing measures and controls would be applied / extended accordingly. This included compliance with relevant legislation such as CDM Regs 2015
- Following Scoping, refined study area to reflect sensitivities of receptors:
  - 1km from draft limits for land and human receptors
  - 1km from draft limits for groundwater receptors
  - 10km downstream from draft limits for surface water bodies
  - 10km rum runway ends for aircraft in flight assessment

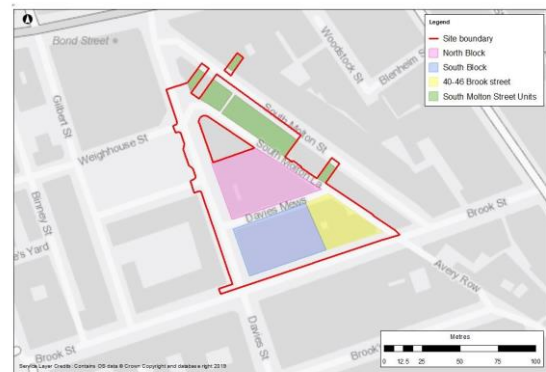


## Heathrow Expansion – Major Accidents & Disasters: baseline and engagement

- Data was collected from sources external to the project (Community Risk Registers, likelihood of various extreme weather events) and internal to the project (Heathrow risk registers, interviews with staff, operating procedures for the airport)
- Engagement with Local Authorities, CAA, Environment Agency and HSE was crucial:
  - We didn't have an agreed industry standard / guidance to refer to
  - Local authorities and entities who make up Local Resilience Forums have well-established terminology and processes for emergency preparedness and risk management
  - Airspace Change Process, overseen by the CAA, requires a 'safety case assessment' and therefore MA&D assessment had to ensure there wasn't duplication of assessment reporting

## South Molton Triangle – scoped out

- Scoped out on the basis ...
- *"The proposed development would be no more vulnerable to major accidents and disasters than the surrounding areas or the existing buildings on-site.*
- *The proposed development would not be a source of hazard that could result in a major accident, nor would it interact with an external source of hazard...*
- *Additionally, if an external disaster or incident was to occur ... the presence of the proposed development is not expected to increase the risk of serious harm to people or the environment..."*



**Scoping Opinion** "It is considered that Major Accidents and Natural Disasters has been appropriately scoped out of the EIA."

## Confidential Client, England

- Nationally Significant Infrastructure Project.
- The scheme included:
  - Up to 4 new combined cycle gas turbine (CCGT) generating units replacing two coal-fired units.
  - Up to two battery storage facilities.
  - Modifications to the existing 400kv substation.
  - Construction of a new 3km gas pipeline connection to the National Transmission Network.



## Confidential Client, England – Major Accidents & Disasters

- Originally proposed to scope out.
- Consultation – HSE raised queries.
- Scoping Opinion required assessment.
- Environmental Statement:
  - On-site changes.
  - Cross-country natural gas pipeline.





## Confidential Client, England – Major Accidents & Disasters: scoping and study areas

- Combined scoping and assessment chapter.
- Study area:
  - 5km for scoping.
  - Assessment refined to:
    - COMAH Consultation Zone for the Existing Power Station Complex.
    - 1 km wide corridor along the proposed route of the Gas Pipeline.



## Confidential Client, England – Major Accidents & Disasters: baseline

- Baseline information collected from other chapters of the ES, such as:
  - Climate change;
  - Traffic and transport; and
  - Flood risk.
- External features:
  - Presence of COMAH sites.
  - Potentially hazardous ground conditions.
  - Proximity to other infrastructure (road, rail, aviation, energy).
- Review of available documentation (e.g. CDM risk register) & regulatory requirements.



## Confidential Client, England – Major Accidents & Disasters: mitigation measures

- Key mitigation measures included:
  - Designs subject to relevant Hazard Identification (HAZID) studies and actions identified integrated into the final design
  - The design, installation, commissioning, operation and maintenance will take into account Good Engineering Practice (GEP).
  - The Applicant's existing Major Accident Prevention Plan (MAPP), will be updated in order to cover the operation of the Proposed Scheme.
  - All control and mitigation measures identified in the Pipeline Safety Report for the Gas Pipeline will be fully and effectively implemented.
  - The construction stage(s) of the Proposed Scheme will be managed through the implementation of the Construction Phase Plan and Construction Environmental Management Plan (CEMP).

## Warehouse Development, North West– Major Accidents & Disasters

- Standard high bay warehouse shell building
- Greenfield site
- Non-industrial, non-urban location
- Similar buildings in area
- No nearby residential properties
- Flat site
- No nearby rivers
- Planning application team intention MA&D not applicable and screened out



## Warehouse Development, North West– Major Accidents & Disasters

- WSP highlighted Major Accident Hazard pipeline running under the development.
- Included in Scoping and scoped in as:
  - Development phase – proposed design significantly increased risk of damage to pipeline which could trigger major accident event.
  - Further detailed assessment took place, requiring engagement with pipeline operator.
- MA&D assessment resulted in change in development layout to reduce risk to as low as practicable:
  - HSE and Pipeline Operator did not raise concerns on submitted application.



# Assessment

Setting out the baseline – hazard identification and receptor tagging

Assessment –

- Identifying reasonable worst-case impact
- Selecting the grouped Risk Events that need further assessment
- Likelihood assessments

Mitigation –

- Identifying the requirements for secondary mitigation
- Risk management options (ALARP?)

Residual assessment

## Appendix D – Hazard identification record template

Text					Are cross-disciplinary impacts likely?												Text			
Grouped Risk Event	Source and/or pathways	Receptor	Source document	Reasonable worst consequence if event did occur	Agriculture, forestry and soils	Air quality	Community	Cultural heritage	Ecology	Health	Land quality	Landscape and visual	Socioeconomics	Sound, noise and vibration	Traffic and transportation	Water resources and flood risk	Primary/tertiary mitigation	Could this lead to a major accident and/or natural disaster with existing mitigation in place?	Is the reasonable worst consequence managed to an acceptable level with existing mitigation in place?	If no, what secondary mitigation is required to reach an acceptable level?
Ground Collapse	Tunnelling	Various	CDM Risk Register	Ground settlement reaches surface resulting in subsidence and structural damage to buildings immediately above.	Y		Y			Y		Y					Managed via CDM: tunnel design and construction methods include risk assessment for overlying structures and monitoring or mitigation if required.	No	Yes	
Major road traffic accident	Working over or adjacent to existing highways. Movement of construction vehicles along public roads and adjacent to public rights of way.	Various	CDM Risk Register	Death and/or injury to a member of the public. Delays and congestion in surrounding area.			Y			Y			Y		Y		Risks identified and managed via CDM, construction planning, draft Code of Construction Practice (CoCP) and method statements etc. Risks to public road users assessed and managed in the ES and then as part of construction planning. Overarching controls addressed via draft CoCP and implemented through method statements, traffic management plan etc.	Yes	Yes	



## Heathrow Expansion – Major Accidents & Disasters

Table 16.3.10: Node 9: Aviation Fuel – Total Railhead

Note: The environmental measures relating to management of major accidents and disasters described for Node 1 in Table 16.3.2 are common across all operational and construction activities and apply to each and all of the potential major accidents and disasters assessed in this table.

Source	Source Detail	Causes	Possible Consequences	Change from Baseline	Receptor	Pathway	Severity of Harm	Duration / People affected	Magnitude	Environmental Measures	Likelihood	Significance	P1	P2	P3
	9.3.2. Spillage of aviation fuel at the railhead	Impact e.g. vehicle, dropped load	There are a number of potential accidents which could lead to a release of fuel. The majority of these would be from small spillages arising from leaks, however, whilst less likely, larger releases could occur. Worst case would be a major failure of a rail fuel wagon or rupture of pipework.	The rail head is a re-provision of an existing facility in a new location, with increased throughput facilities will be to current standards. The number of wagons per train will increase.	Colne Brook	Release over ground to adjacent river	Severe	Medium	Low MA&D	Heathrow Fuel Facilities will be designed and operated in adherence to relevant Joint Industry Group (JIG) guidelines.	Small chance	Not significant	✓	✓	✓
		Human error during offloading	If this release occurs within the railhead, there would be a release to unmade ground from wagon or above ground pipework.	This potential major accident is present at the existing railhead.	Wraysbury & Hythe End Gravel Pits SSSI	Downstream of Colne Brook	Large	Medium	Medium MA&D	The operators of the aviation fuel railhead have frameworks for the safe handling, management and emergency response for their operations which will be applied to any new facility associated with the DCO Project.	Small chance	Not significant	✓	✓	✓
		Extreme weather event exceeds design basis	Fuel spilled to the ground at the rail head and could flow over ground to the adjacent Colne Brook.	As the location is changed the relevant surface water receptors will be different.	Groundwater	Via unmade ground/soil	Severe	Long	Medium MA&D	Railways and all associated infrastructure will be designed and operated to meet applicable rail industry standards. The design and operation of railway assets will	Small chance	Not significant	✓	✓	✓
		Derailment	In the event of a significant spill, some of the fuel would												
		Pipework or equipment													



# Final words



# Q&A Session

20 mins with panel

# Closing remarks

