



ENVIRONMENTAL STATEMENT – VOL 3 – APPENDIX 17.1

Major Accidents and Disasters Long List

Drax Bioenergy with Carbon Capture and Storage

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

Document Reference Number: 6.3.17.1

Applicant: Drax Power Limited

PINS Reference: EN010120



REVISION: 01

DATE: May 2022

DOCUMENT OWNER: WSP UK Limited

AUTHOR: L. Dugdale

APPROVER: L. Watts

PUBLIC

TABLE OF CONTENTS

1. MAJOR ACCIDENTS & DISASTERS LONG LIST 1

TABLES

Table 1.1 – Major Accidents and Disasters Long List 1

MAJOR ACCIDENTS & DISASTERS LONG LIST

Table 1.1 – Major Accidents and Disasters Long List

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Natural Hazards	Geophysical	Earthquakes	Chapter 2 (Site and Project Description) (document reference 6.1.2)	N	N/A	N/A	Do not occur in Britain of a sufficient intensity owing to the motion of the Earth's tectonic plates causing regional compression. Uplift from the melting of the ice sheets that covered many parts of Britain thousands of years ago can also cause movement. The BGS acknowledges that on average, a magnitude 4 earthquake happens in Britain roughly every two years and a magnitude 5 earthquake occurs around every 10 to 20 years. As such, the Cabinet Office National Risk Register of Civil Emergencies states that "Earthquakes in the UK are moderately frequent but rarely result in large amounts of damage. An earthquake of sufficient intensity (determined on the basis of the earthquake's local effect on people and the environment) to inflict severe damage is unlikely". The Proposed Scheme is not in or close to an active area.	N
Natural Hazards	Geophysical	Volcanic Activity	Chapter 2 (Site and Project Description)	N	N/A	N/A	The Proposed Scheme is not in an active area and highly unlikely that an ash cloud could significantly impact on any aspect of the Proposed Scheme.	N
Natural Hazards	Geophysical	Landslides	Chapter 11 (Ground Conditions) (document reference 6.1.11)	N	N/A	N/A	Historical landslides have not been recorded within the boundary of the Proposed Scheme and the Proposed Scheme does not involve the formation of deep cuts/high embankments.	N
Natural Hazards	Geophysical	Sinkholes	Chapter 11 (Ground Conditions)	N	N/A	N/A	This is likely to be covered in the geotechnical design, and there are no examples of areas that have been affected by sinkholes in the locality to warrant considering this event likely and taking it forward for assessment.	N
Natural Hazards	Geophysical	Tsunamis	Chapter 2 (Site and Project Description)	N	N/A	N/A	The Proposed Scheme is located inland, outside a tsunamis risk zone.	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Natural Hazards	Hydrology	Coastal Flooding	Chapter 2 (Site and Project Description)	N	N/A	N/A	The Proposed Scheme is located inland, outside a coastal area.	N
Natural Hazards	Hydrology	Fluvial Flooding	Chapter 12 (Water Environment) (document reference 6.1.12)	Y	C,O	Aquatic environment and ecological receptors Properties Public and local community	Environment Agency Flood Map for Planning (Rivers and Sea) indicates that the northern and southern part of the Drax Power Station Site, Carr Lane, Redhouse Lane and the area of the Existing Jetty are located in the high risk Flood Zone 3 but benefit from the existing flood defences on the River Ouse. Flood Zone 3 is described as land assessed as having a 1 in 100 or greater annual probability of flooding from river or a 1 in 200 or greater annual probability of flooding from sea in any year. The risk of flooding in this area is associated with the River Ouse, which is tidally influenced at this location, with minor fluvial contributions. There is a risk of breach of flood defences.	Y
Natural Hazards	Hydrology	Pluvial Flooding	Chapter 12 (Water Environment)	Y	C,O	Aquatic environment and ecological receptors Properties Public and local community	The Flood Risk Assessment (document reference 6.3.12.1) undertaken for the EIA states the following: "A review of the Environment Agency's Risk of Flooding from Surface Water mapping shows that the vast majority of the Proposed Scheme is not susceptible to flooding from surface water. The EA's Risk of Flooding from Surface Water mapping does, however, indicate that there are some isolated areas at low to high susceptibility of flooding from surface water. The areas at medium to high risk of surface water flooding largely correspond to the existing network of ponds and ditches present in Drax Power Station Site. The map also shows that there is a low to medium risk of flooding in the locations of the proposed Carbon Dioxide Delivery Terminal Compound and the construction laydown area associated with the Northern Development Parcel. It is likely that the indicated risk of flooding is associated with localised areas of low ground where water would pond during or after severe or prolonged rainfall events. Considering this information, the Proposed Scheme is considered to be at low susceptibility of flooding from surface water."	N
Natural Hazards	Hydrology	Groundwater Flooding	Chapter 12 (Water Environment)	Y	C,O	Aquatic environment and ecological receptors Properties Public and local community	The Flood Risk Assessment undertaken for the EIA states the following: "During consultation undertaken in 2018 as part of Drax Repower project associated with Drax Power Station, the Selby Area Internal Drainage Board (IDB) advised that high groundwater levels are likely to occur in the area around Drax Power Station. However, the Proposed Scheme is underlain by a few metres of clayey superficial deposits which are likely to limit groundwater emergence above ground level. The Selby District Level 1 Strategic Flood Risk Assessment (SFRA)	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
							<i>reproduces the relevant portion of The Environment Agency's Areas Susceptible to Groundwater Flooding (AStGWF) map. The map indicates that the area of the Drax Power Station Site is located in a 1 km² grid square where less than 25% of the land is considered to be susceptible to groundwater flooding. The map also shows that the Proposed Scheme is not located in the area susceptible to groundwater flooding. Therefore, the potential risk of flooding from groundwater is assessed to be low."</i>	
Natural Hazards	Hydrology	Avalanches	Chapter 2 (Site and Project Description)	N	N/A	N/A	Not considered relevant given the geographical location of the Proposed Scheme. The Proposed Scheme's topography is relatively flat and therefore an avalanche will not occur.	N
Natural Hazards	Climatological and Metrological	Cyclones, hurricanes, typhoons, storms and gales	Chapter 2 (Site and Project Description)	Y	N/A	Workers	Cyclones, hurricanes and typhoons do not occur in the UK. The winter of 2015/2016 was the second wettest winter on record and a series of storms (including 'Desmond' and 'Eva') resulted in heavy and sustained rainfall. 17,600 UK properties were flooded and several bridges collapsed, disrupting access to and from local communities. According to the latest five year meteorological data (2002 - 2016) from RAF Waddington, the greatest wind speed recorded was 66 km/h. The RAF Waddington site is located more than 60 km south of Drax and therefore a review of wind speeds during 2009-2012 from the closest weather station to Drax at Church Fenton, decommissioned in 2013, identified a maximum wind speed of 76 km/h. Storms and gales could result in damage to new site infrastructure, property and works on site. However, it is anticipated that the risk of vulnerability to MA&D event for the Proposed Scheme would be comparable to that for the existing Drax Power Station and design standards would take into account these weather conditions. There is a local wind monitoring station and localised high winds / gusts data from this will be used to establish robust cladding and insulation specifications, to reduce the risk to as low as reasonably practicable of cladding/insulation being peeled back and stripped off structures.	N
Natural Hazards	Climatological and Metrological	Thunderstorms	Chapter 2 (Site and Project Description)	Y	N/A	Workers	This type of event could result in lightning strikes to temporary elevated structures during construction (e.g. tower cranes) and new elevated structures (such as columns, chimney stacks and cooling towers) introduced as part of the Proposed Scheme; however, the risk is no different to similar existing elevated structures on site, which are fitted with lightning protection where appropriate. New elevated structures will be designed taking into account historical site experience, current design standards and climate change resilience. Specific measures are therefore not considered to be required as part of the Proposed Scheme.	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Natural Hazards	Climatological and Metrological	Wave surges	Chapter 2 (Site and Project Description)	N	N/A	N/A	The Proposed Scheme is located sufficiently inland, and therefore is not subject to wave surges.	N
Natural Hazards	Climatological and Metrological	Extreme temperatures: Heatwaves Low (sub-zero) temperatures and heavy snow	Chapter 2 (Site and Project Description) Chapter 11 (Ground Conditions)	Y	N/A	N/A	<p>This type of event could give rise to changes in climatic conditions, with site infrastructure exposed to greater heat intensity and exposure to sunlight. Heavy snow could cause workers and delivery vehicles and drivers to be trapped.</p> <p>In August 1990, the UK experienced heatwave conditions with temperatures reaching what was then a record 37.1°C in Cheltenham, England. In August 2003 a UK heatwave lasted 10 days and resulted in over 2,000 deaths. High temperature records are now being broken with increasing frequency.</p> <p>The most widespread and prolonged low temperatures and heavy snow in recent years occurred from December 2009 to January 2010. Daytime temperatures were mostly sub-zero across the UK. At night, temperatures in England regularly fell to -5°C to -10°C. Snowfall across the UK lasted for some time, allowing 20cm to 30cm of snow to build up, closing schools and making it very difficult to travel.</p> <p>Between 1981 and 2010, there were 12 occurrences where summer mean temperatures exceeded 25.2°C on five or more consecutive days.</p> <p>Between 1981 and 2010, there have been 1,368 days with a maximum minimum temperature below zero degrees Celsius.</p> <p>Between 1981 and 2010, there were 229 days with snow lying at 0900 however, there are no records from the Met Office of the depth of snow.</p> <p>The lowest temperature recorded on the Drax Power Station site is -16°C. The Basic Engineering Data Document (BEDD) for the Proposed Scheme defines the extreme low temperature to which the Proposed Scheme is to be designed as -15°C.</p> <p>However, the risk is no different to those for the existing Drax Power Station.</p>	N
Natural Hazards	Climatological and Metrological	Droughts	Chapter 11 (Ground Conditions) Chapter 12 (Water Environment)	Y	C,O	N/A	<p>Over the past 40 years or so England has experienced five long-duration droughts and two shorter periods of drought. During the 2010-12 drought, parts of eastern England recorded their lowest 18 month rainfall total in over 100 years.</p> <p>Between April 2010 and March 2012, the Drax area only received 65-85% of rainfall compared with the 1981-2010 average. There was a drought in 1995-1996 which affected the area of the Proposed Scheme</p> <p>However, the Proposed Scheme should not be vulnerable to drought as water is not an essential service during the construction, use or maintenance phases. The design of the sub-structure will be resilient to ground shrinkage and should remain in the design risk register until designed out.</p>	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Natural Hazards	Climatological and Metrological	Severe Space Weather: Solar Flares	Chapter 2 (Site and Project Description)	N	N/A	N/A	Solar flare events are known to interrupt radio and other electronic communications. Records from solar storms in 1921 and 1960 describe widespread radio disruption and impacts on railway signalling and switching systems. There will be the use of technology to control processes and plant, however this is protected, therefore the Proposed Scheme is no more vulnerable than the existing systems on site.	N
Natural Hazards	Climatological and Metrological	Severe Space Weather: Solar Energetic Particles	Chapter 2 (Site and Project Description)	N	N/A	N/A	Solar energetic particles which cause solar radiation storms, but only in outer space, so this major event type can be scoped out.	N
Natural Hazards	Climatological and Metrological	Severe Space Weather: Coronal Mass Ejections	Chapter 2 (Site and Project Description)	N	N/A	N/A	Coronal mass ejections (CME) cause geomagnetic storms. The geomagnetic storm in 2003 caused the UK aviation sector to lose some GPS functions for a day, however there were no known significant impacts on road users or infrastructure.	N
Natural Hazards	Climatological and Metrological	Fog	Chapter 2 (Site and Project Description)	N	N/A	N/A	Fog is one of the most common weather conditions in the UK, particularly throughout autumn and winter. Severe disruption to transport occurs when the visibility falls below 50m over a wide area. The majority of the work on the Proposed Scheme is within the Drax Power Station site where vehicle speed is controlled to below 10 mph.	N
Natural Hazards	Climatological and Metrological	Wildfires: Forest fire, Bush / brush, pasture	Chapter 2 (Site and Project Description)	N	N/A	N/A	In April and May 2011 numerous wildfires broke out across the UK after unusually hot and dry weather. England received only 21% of its usual rainfall for April 2011. The Proposed Scheme and surrounding area does not contain vegetation with a potential high fuel load such as gorse.	N
Natural Hazards	Climatological and Metrological	Poor Air Quality	Chapter 6 (Air Quality)(document reference 6.1.6)	Y	C	N/A	In 2006 the UK experienced two periods of extended hot weather with associated elevated ozone and harmful airborne particles. In the spring of 2015, two particle pollution episodes caused widespread poor air quality throughout the UK, with multiple areas measuring 'High' on the Daily Air Quality Index and resulted in around 1,100 deaths due to exacerbation of pre-existing ill-health conditions. Summer 2015 also contained two elevated ozone episodes. Construction: Construction effects would be temporary for the duration of the construction phase. Increased dust emissions from construction activities and traffic could lead to potential loss of amenity at sensitive receptors. Traffic management measures may result in both positive and adverse changes to emissions from vehicle exhausts and roadside pollution concentrations. Operation: The Proposed Scheme is expected to result in changes to emissions of amines and ammonia which require a variation to the site's existing environmental permit. In the determination of the proposed variation to the permit, the Environment Agency will set emission limits on amines and ammonia to air together with requirement to implement appropriate mitigation measures to prevent harm to environmental	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
							receptors. Therefore, significant residual air quality effects which could result in a MAD event are not anticipated during construction and operation of the Proposed Scheme.	
Natural Hazards	Biological	Disease epidemics: - Viral - Bacterial - Parasitic - Fungal - Prion	Chapter 2 (Site and Project Description)	N	N/A	N/A	The Proposed Scheme is located in a developed country where the population is in general good health. Furthermore, the use of the Proposed Scheme is not going to give rise to any disease epidemics. Public Health England, the executive agency of the Department of Health is responsible for protecting the nation from public health hazards, preparing for and responding to public health emergencies. One of Public Health England's functions is to protect the public from infectious disease outbreaks and the Agency has produced a document providing operational guidance for the management of outbreaks of communicable disease, 'Communicable Disease Outbreak management: Operational Guidance'.	N
Natural Hazards	Biological	Animal Diseases: - zoonotic: • avian influenza • West Nile virus • Rabies - non-zoonotic: • foot and mouth • swine fever	Chapter 11 (Ground Conditions)	N	N/A	N/A	Low and highly pathogenic avian influenza has been recorded in poultry in the UK several times in the last 10 years, most recently in the winter of 2016/17, although with no human cases reported. There was a devastating foot and mouth outbreak in 2001. Scoped out as the use of the Scheme is not going to be the source of any disease epidemics and spread would be controlled through containment of infected animals including prohibition of transportation.	N
Natural Hazards	Biological	Plants	Chapter 8 (Ecology) (document reference 6.1.8)	N	C	Aquatic and ecological receptors People Workers	Invasive non-native plant species have been recorded within 2 km of the Order Limits and have previously been recorded within the Drax Power Station Site. To address the risk of spreading invasive non-native plant an invasive species strategy would be produced by the Contractor implementing the Proposed Scheme. In addition, a pre-construction ecological walkover survey would be completed in the active growing season (approximately April to August inclusive) prior to vegetation and site clearance commencing in any part of the Site. The mitigation measures in relation to invasive non-native plant species are included in the REAC which would be secured by a requirement in the DCO.	N
Technological or Manmade Hazards	Societal	Extensive public demonstrations which could lead to violence and loss of life.	Chapter 2 (Site and Project Description)	N	N/A	N/A	The Proposed Scheme is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts. The Proposed Scheme is not considered highly controversial and should not lead to high profile public demonstrations.	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Technological or Manmade Hazards	Societal	Widespread damage to societies and economies.	Chapter 2 (Site and Project Description) Chapter 16 (Population and Health) (document reference 6.1.16)	N	N/A	N/A	The Proposed Scheme is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts.	N
Technological or Manmade Hazards	Societal	The need for large-scale multi-faceted humanitarian assistance.	Chapter 2 (Site and Project Description) Chapter 16 (Population and Health)	N	N/A	N/A	The Proposed Scheme is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts.	N
Technological or Manmade Hazards	Societal	The hindrance or prevention of humanitarian assistance by political and military constraints.	Chapter 2 (Site and Project Description) Chapter 16 (Population and Health)	N	N/A	N/A	The Scheme is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts.	N
Technological or Manmade Hazards	Societal	Significant security risks for humanitarian relief workers in some areas.	Chapter 2 (Site and Project Description) Chapter 16 (Population and Health)	N	N/A	N/A	The Proposed Scheme is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts.	N
Technological or Manmade Hazards	Societal	Famine	Chapter 2 (Site and Project Description)	N	N/A	N/A	The Proposed Scheme is located in a developed country that produces its own crops and imports food. It is politically stable and not subject to hyperinflation and therefore food is available, whether produced within the UK or imported. Famine is also not relevant to the use of the Proposed Scheme.	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Technological or Manmade Hazards	Societal	Displaced population	Chapter 2 (Site and Project Description) Chapter 16 (Population and Health)	N	N/A	N/A	There will be no significant displacement of populations as part of the Proposed Scheme.	N
Technological or Manmade Hazards	Industrial and Urban Accidents	Major Accident Hazard Chemical sites		Y	C,O	Aquatic environment and ecological receptors Public and local community Workers	There are no other Control of Major Accident Hazard (COMAH) sites within 5km of the Drax Power Station site other than the Drax Power Station itself, which is currently a lower tier establishment. The COMAH establishment is legally required to assess any additional risk introduced by development within its outer zone and implement measures to reduce those risks to it to be As Low As Reasonably Practicable (ALARP). Therefore, it is proposed that no further evaluation in the ES is required on the COMAH establishment as an initiator of a MA&D event on the Scheme, however further evaluation of an event in the Proposed Scheme triggering a domino effect on the COMAH establishment should be further evaluated in the ES.	Y
Technological or Manmade Hazards	Industrial and Urban Accidents	Major Accident Hazard Pipelines		Y	C	N/A	<p>A known proposed gas pipeline associated with the Knottingley Power Project has been identified within the Local Authority area; however, the proposed route of the pipeline is a significant distance from the Proposed Scheme and will not impact the construction or operation of the Proposed Scheme.</p> <p>As part of the Drax Repower DCO application, a natural gas pipeline has been approved to be run to the site. However, the proposed route is sufficiently distanced from the proposed works on the road from the quay to site and BECCS works on the site. Once the pipeline is operational, if work was to be required within its consultation zone then it would be legally required to be demonstrated as ALARP under existing H&S legislation before being allowed to take place.</p> <p>Although a proposed National Grid pipeline would transport the compressed CO₂ from its treatment location at Drax to its storage location under the North Sea the pipeline is not part of this scheme and additionally CO₂ is not a material which falls within the scope of the Pipelines Act and therefore the CO₂ cross-country pipeline itself is not classified as a Major Accident Pipeline. Additionally, the CO₂ pipeline does not fall within the consultation zone of a MAH pipeline within the study area of the Proposed Scheme. Hence, the MAH pipelines event type being scoped out as there are no MAH pipelines.</p>	N
Technological or Manmade Hazards	Industrial and Urban Accidents	Nuclear		N	N/A	N/A	Nuclear sites are designed, built and operated so that the chance of accidental releases of radiological material in the UK is extremely low. Last historical major accident in the UK was Windscale in 1957. No nuclear sites within a 5km corridor along the Proposed Scheme.	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Technological or Manmade Hazards	Industrial and Urban Accidents	Fuel storage	Chapter 2 (Site and Project Description)	N	O	Workers Road Users	In December 2005 Europe's largest peacetime fire occurred at the Buncefield Oil Storage Terminal in Hemel Hempstead, England. The surrounding area was temporarily evacuated and some local businesses experienced long-term disruption to operations. There are no bulk fuel storage sites within the study area.	N
Technological or Manmade Hazards	Industrial and Urban Accidents	Dam breaches	Chapter 12 (Water Environment)	Y	C,O	Workers	Dam breaches in the UK are rare; the last major breach was at the Cwm Eigiau dam in 1925, which caused 17 fatalities and widespread flooding. Environment Agency Flood Risk from Reservoirs map indicates that the northern and southern part of the Drax Power Station Site, and the northern part of the proposed laydown area, is at risk of flooding from reservoirs. The cooling ponds located in north and south of the existing Drax Power Station Site each have a capacity of 132,000m ³ which classifies them as large raised reservoirs. The area around Cooling Towers is used as a contained 'flood plain' in the event of tower basin failure. As per the requirements of the Reservoirs Act 1975, these are periodically inspected by a Competent Engineer.	Y
Technological or Manmade Hazards	Industrial and Urban Accidents	Mines and storage caverns	Chapter 11 (Ground Conditions)	Y	C	Workers	The Coal Authority interactive map indicates that the area to the north of the Existing Power Station Site is within a Coal Mining Reporting Area. However, online maps indicate that there are no known mines / openings in the area. The majority of the work will be on the Drax Power Station Site close to existing structures and there is no historical evidence of subsidence.	N
Technological or Manmade Hazards	Industrial and Urban Accidents	Fires	Chapter 2 (Site and Project Description) Chapter 10 (Heritage) (document reference 6.1.10) Chapter 16 (Population and Health)	Y	C,O	Workers	Construction: Fires could be initiated by construction related activities which impact areas adjacent to the construction activities such as the lower tier COMAH installation. During construction, standard control measures would be implemented by the appointed contractor to manage the risk of fire. During the commissioning stage when there are flammable materials within the BECCS plant the current firewater system will have been extended as part of the Proposed Scheme to account for additional fire risks associated with the Proposed Scheme. The risks will be managed to be ALARP and suitable mitigation measures will be in place at the commencement of operations. Operation: There are no significantly sized urban buildings in close proximity of the Proposed Scheme structures. Notwithstanding this, the risk of fires affecting the Proposed Scheme from offsite urban developments during operation is no greater than risks for Drax Power Station.	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
							There is a current firewater system in place on site which is being extended as part of the Proposed Scheme to account for additional fire risks associated with the Proposed Scheme. The risks will be managed to be ALARP and suitable mitigation measures will be in place at the commencement of operations.	
Technological or Manmade Hazards	Transport accidents	Road	Chapter 5 (Transport) (document reference 6.1.5) Chapter 11 (Ground Conditions)	Y	C	Aquatic environment and ecological receptors Properties Workers Road users	Significant transport accidents occur across the UK on a daily basis, mainly on roads, and involving private and/or commercial vehicles. During construction there will be an increase in heavy construction plant and equipment on local road network which may increase the risk of accidents. The Traffic and Transport PEIR Chapter identifies that a cluster of accidents has occurred at a number of the junctions within the study area. The full accident data details will be obtained from the relevant Local Highway Authorities and analysed within the ES Traffic and Transport Chapter including Environmental Impacts.	Y
Technological or Manmade Hazards	Transport accidents	Rail	Chapter 2 (Site and Project Description)	Y	C,O	N/A	The only railway within the Proposed Scheme area is that used for transporting coal and renewable fuel to the site from the Humber Port. The Proposed Scheme does not involve use or modification of the railway. Therefore, vulnerability of the Scheme to the risk of MA&D events related to rail transportation are not anticipated during construction and operation of the Proposed Scheme.	N
Technological or Manmade Hazards	Transport accidents	Waterways	Chapter 2 (Site and Project Description)	N	N/A	N/A	All transport of construction materials will be via the road network. Within the study area no roads cross a waterway.	N
Technological or Manmade Hazards	Transport accidents	Aviation	Chapter 2 (Site and Project Description)	N	N/A	N/A	There have been no major air accidents in the UK since the Kegworth incident in 1989. There are no working airfields within the study area.	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Technological or Manmade Hazards	Pollution accidents	Air	Chapter 6 (Air Quality)	Y	C,O	N/A	<p>Construction: Construction effects would be temporary for the duration of the construction phase. Increased dust emissions from construction activities and traffic could lead to potential loss of amenity at sensitive receptors. Traffic management measures may result in both positive and adverse changes to emissions from vehicle exhausts and roadside pollution concentrations. Emissions from mobile plant and equipment covered under H&S and environmental legislation. Therefore, it is not proposed to evaluate this further in the ES.</p> <p>Operation: The Proposed Scheme is expected to result in changes to emissions of amines and ammonia which require a variation to the site's existing environmental permit. In the determination of the proposed variation to the permit, the Environment Agency will set emission limits on amines and ammonia to air together with requirement to implement appropriate mitigation measures to prevent harm to environmental receptors.</p> <p>The potential impact of accidental releases of CO2 has been considered as part of the hazard identification process and will be further assessed through modelling once the Front-End Engineering Design (FEED) has been finalised. This major event type will be assessed as part of the ES.</p>	Y
Technological or Manmade Hazards	Pollution accidents	Land	Chapter 11 (Ground Conditions) Chapter 12 (Water Environment)	Y	O	Ecological receptors	<p>During construction there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction activities. During construction, standard control measures would be implemented by the appointed contractor to manage the risk of spillages and leaks.</p> <p>During operation, it is understood that a range of new hazardous wastes may be generated and stored on site before going offsite for treatment. Waste associated with the Proposed Scheme will be in storage tanks in the existing waste storage area. This area already complies with legal requirements with regards to containment and prevention of land pollution incidents.</p> <p>The Environmental Permit and the Drax Power Station ISO14001 certified Environmental Management System sets out how waste management, storage and disposal will be managed to minimise the likelihood of environmental impact.</p> <p>Waste management, does not need to be assessed further as part of the ES.</p>	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Technological or Manmade Hazards	Pollution accidents	Water	Chapter 11 (Ground Conditions) Chapter 12 (Water Environment)	Y	N/A	N/A	<p>The majority of the Proposed Scheme is underlain by the Hemingbrough Glaciolacustrine Formation (Unproductive) with pockets of Brighton Sand Formation (Secondary A Aquifer) present in places. Furthermore, the areas adjacent to the River Ouse (north of the Proposed Scheme and the Drax Jetty area) are underlain by Alluvium (Secondary A Aquifer). The Environment Agency defines Secondary A Aquifers as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. Unproductive strata are defined by the Environment Agency as having low permeability with negligible significance for water supply or river base flow. The groundwater vulnerability map supplied by DEFRA shows the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a single square kilometre. The groundwater vulnerability map indicates that Drax Power Station site has 'low' to 'medium' vulnerability whilst the areas which are underlain by Alluvium superficial deposits i.e. north of the Proposed Scheme have 'medium – high' vulnerability.</p> <p>The EA's Groundwater Source Protection Zone (SPZ) mapping shows that the vast majority of the Drax Power Station site, southern part of the proposed laydown area, Carr Lane and western section of Redhouse Lane are located in Zone 3 of the groundwater SPZ. Total catchment (Zone 3) is defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source. SPZs are typically used to protect abstractions for public water supply. The northern part of the Drax Power Station site, including the area of the existing 'woodyard' laydown area, the northern section of the proposed laydown area are not located in the groundwater SPZ.</p> <p>It is considered that construction impacts can be appropriately mitigated via the REAC submitted with the DCO Application as well as the CEMP.</p> <p>The lay down area adjacent to the River Ouse (which was considered to be the potential source of a MA&D pollution accident) is no longer required as the use of the jetty is no longer part of the Proposed Scheme.</p> <p>In addition to the proposed standard control measures (e.g. CEMP and REAC), a Method Statement (MS) will be provided detailing the procedures for securing the site and plant equipment for a flood event, in particular with reference to harmful substances and fuels. The magnitude of impact on surface water features is considered to be negligible.</p> <p>No permanent risks to water quality associated with the operation of the Proposed Scheme are envisaged as the design of the Proposed Scheme includes appropriate secondary containment measures.</p>	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Technological or Manmade Hazards	Utilities failures	Electricity	Chapter 2 (Site and Project Description)	Y	C	Workers	Instances of electricity failure (also referred to as power loss or blackout) can be caused by a number of things, such as severe weather (e.g. very strong winds, lightning and flooding) which damage the distribution network. These tend to be mainly specific place, local (e.g. metropolitan area) and less frequently regional (e.g. North East) as a result of severe winter storms and consequent damage to the distribution overhead line network. Above-ground electrical transmission lines are present within the Scheme's Order Limits, the responsibilities of which lie with the relevant local operator or company should this infrastructure fail. Information regarding diversion works will be considered in the Environmental Impact Assessment. The potential risk of construction-related incidents when undertaking diversion works and work close to key electrical infrastructure as part of the Scheme would be covered by existing legislation to manage and control risk events to be ALARP.	N
Technological or Manmade Hazards	Utilities failures	Gas	Chapter 2 (Site and Project Description)	N	C,O	N/A	Underground and above-ground gas transmission pipelines are currently not present in the Scheme's Order Limits. Looking ahead, as part of the Drax Repower Project, a high pressure natural gas pipeline has been approved for connecting the site to the national grid. However, its proposed route is a sufficient distance from the work related to this Proposed Scheme that it is proposed that further evaluation in the ES is not required.	N
Technological or Manmade Hazards	Utilities failures	Water supply		N	N/A	N/A	There is a water supply connection at Drax Power Station. However, there are no connections in the Construction Area which are believed to be significant enough to increase the vulnerability of the Proposed Scheme to a MA&D event.	N
Technological or Manmade Hazards	Utilities failures	Sewage system		N	N/A	N/A	No use of the sewage system is associated with the Proposed Scheme. During the construction phase, temporary portable systems will be in place covered by H&S welfare requirements.	N
Technological or Manmade Hazards	Malicious Attacks	Unexploded Ordnance	Chapter 11 (Ground Conditions)	N	N/A	N/A	A low potential exists for encountering unexploded ordnance during construction of the Proposed Scheme. Measures would be undertaken during construction to brief operatives to raise awareness of this issue, and to define appropriate response strategies should this be discovered during the works.	N
Technological or Manmade Hazards	Malicious Attacks	Attacks Chemical Biological Radiological Nuclear		N	N/A	N/A	Extremists remain interested in Chemical, Biological, Radiological and Nuclear (CBRN) materials, however alternative methods of attack such as employing firearms or conventional explosive devices remain far more likely. Historical use has been in closed densely occupied structures (underground, buildings) or targeted at specific individuals. The Proposed Scheme is unlikely to be a target for this type of event due to the low number of exposed targets.	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Technological or Manmade Hazards	Malicious Attacks	Transport systems		N	N/A	N/A	Potential systems would include (but are not limited to) railways, buses, passenger ferries, cargo vessels and aircraft. The Proposed Scheme is unlikely to be a target for this type of event due to the low number of exposed targets.	N
Technological or Manmade Hazards	Malicious Attacks	Crowded places		N	N/A	N/A	The Proposed Scheme does not fall within the definition of a crowded place, i.e. pedestrian routes and other thoroughfares as well as sports arenas, retail outlets and entertainment spaces. The Proposed Scheme is unlikely to be a target for this type of event due to the low number of exposed targets.	N
Technological or Manmade Hazards	Malicious Attacks	Cyber		Y	O	N/A	Cyber attacks occur almost constantly on key national and commercial electronic information, control systems and digital industries. The increasing reliance on technology to control the carbon capture and storage processes and plant could render the Scheme more vulnerable to a cyber-attack. Notwithstanding this, it is not considered to be more vulnerable to attack than existing processes and plant on site and similar infrastructure installed and running on the UK power network. Drax is accountable to the Secretary of State for Business, Energy and Industrial Strategy for ensuring the resilience of their strategic power generator stations and network to national security risks, including from terrorism, cyber-attack, natural hazards and other risks outlined in the National Risk Register of Civil Emergencies.	N
Technological or Manmade Hazards	Malicious Attacks	Infrastructure	Chapter 2 (Site and Project Description)	N	N/A	N/A	Terrorists in the UK have previously attacked, or planned to attack, national infrastructure. Attempts were made to attack electricity substations in the 1990s. Bishopsgate, in the City of London, was attacked in 1993 and South Quay in London's Docklands in 1996. These attacks resulted in significant damage and disruption but relatively few casualties. The Proposed Scheme has security fencing around the site and controlled access with 24/7 security. As a COMAH and nationally important infrastructure site there is close liaison with UK security services. Members of the public who are wilfully trespassing are outside the occupier's legal requirements under the Occupiers' Liability Act 1984 and as such are excluded from the assessment.	N
Technological or Manmade Hazards	Engineering accidents and failures	Bridge failure	Chapter 2 (Site and Project Description)	N	N/A	N/A	Bridge works are not proposed as part of the Proposed Scheme.	N

Major Event Group	Major Event Category	Major Event Type	Topic Chapter(s) with Relevant Information	Relevant to Scheme Area?	Phases which Exacerbate Vulnerability	Potential Receptors	Justification for Inclusion / Exclusion in Short List	Short List?
Technological or Manmade Hazards	Engineering accidents and failures	Flood defence failure	Chapter 12 (Water Environment)	Y	C,O	People Property Workers	The study area associated with the Proposed Scheme does benefit from flood defences and / or flood storage areas. The design of the Proposed Scheme has been developed to include allowances for future climate change predictions that could result in flooding. Notwithstanding these factors, the potential risk of breach events will be considered in the Environmental Impact Assessment.	Y
Technological or Manmade Hazards	Engineering accidents and failures	Mast and tower collapse		N	N/A	N/A	There are no towers or masts in close proximity to the Proposed Scheme or being built as part of the Proposed Scheme.	N
Technological or Manmade Hazards	Engineering accidents and failures	Property or bridge demolition accidents	Chapter 2 (Site and Project Description)	N	N/A	N/A	The Proposed Scheme does not involve demolition works to take down any significant buildings and structures.	N
Technological or Manmade Hazards	Engineering accidents and failures	Tunnel failure/fire	Chapter 2 (Site and Project Description)	N	N/A	N/A	There are no tunnel structures proposed as part of the Proposed Scheme or within the study area.	N