LONDON RESILIENCE

PREPARING FOR EMERGENCIES

London Resilience Partnership

London Risk Register

Version 5

NOT PROTECTIVELY MARKED

February 2015

London Resilience Team

London Fire Brigade

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The London Risk Register is collectively owned by the Category 1 Responders (as defined by Schedule 1 to the Civil Contingencies Act 2004) within the London Resilience Forum area.

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1. Introduction and Background

Risk assessment underpins the work of the London Resilience Forum. Assessments within the London Risk Register drive the development of multi-agency capabilities to prevent, mitigate, respond to and recover from incidents.

Publication of the London Risk Register is designed to assist communities and businesses develop their own emergency and business continuity arrangements.

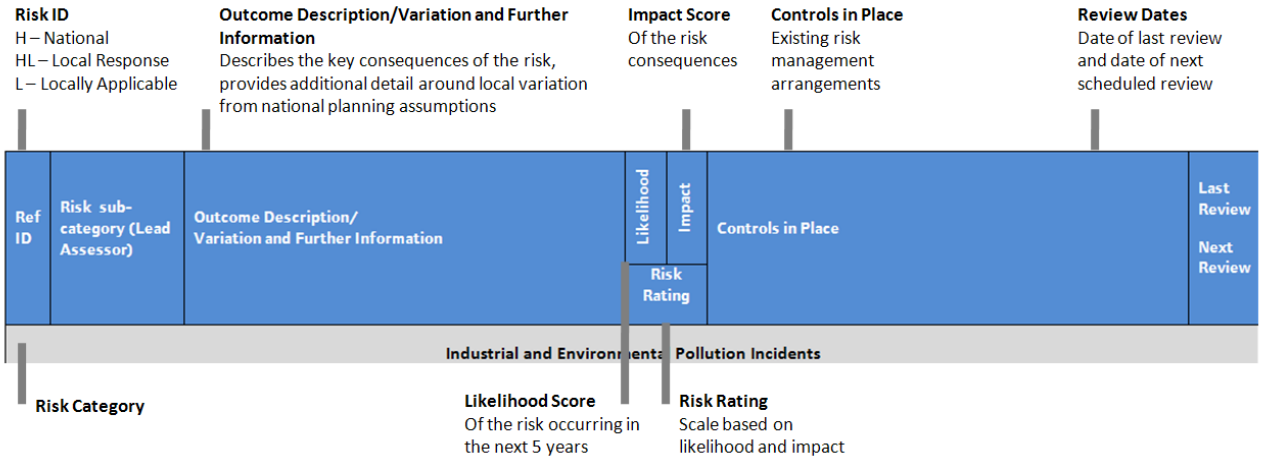
Planning is based on 'reasonable worst case scenarios' informed by historical and scientific data, modelling and professional expert judgement of both the likelihood and impact of a risk. The inclusion of a risk does not mean that we think it will happen nor that the impact would be as serious as the description provided.

Each risk is scored for impact and likelihood. Impact is ranked from Limited (1) to Catastrophic (5) and likelihood by how likely a risk is to happen over the next 5 years. These scores are combined to give an overall risk rating.

The London Risk Register is designed to provide a summary of the main risks affecting Greater London. The UK National Risk Register of Civil Emergencies provides a similar outline of risk for the UK as a whole. Further risk assessments may be conducted within each London Borough, providing additional information on locally specific risks and response arrangements.

Understanding the Risk Register

Each risk is assigned a Risk ID which is nationally consistent and relates to a more detailed, and protectively marked, Individual Risk Assessment.



2. London Risk Register: High-Level Summary

Impact					
	Toxic Chemical Release	**Coastal Flooding** **National Electricity Failure** **Unconventional Attack** **Reservoir/Dam Failure**	**Severe Inland Flooding**		
	Radioactive material release Loss of water supplies	Oil/Gas Upstream Failure Regional Electricity Failure Drought Hazardous Goods Accident	**Fluvial/Surface Water Flooding**	**Pandemic Disease**	
	Pipeline Fire or Explosion Maritime transport incident Land Movement Bridge Collapse	Aviation Incident Road explosives accident Fire at fuel distribution site Cyber Security Railway Accident Bio Release	Emerging Infectious Diseases Storms and Gales Low Temperatures and Snow Attacks on Infrastructure Severe Space Weather Industrial Accident	Local Fluvial Flooding Attack on Crowded Places Heatwave	Fire and Rescue Strike Attack on Transport System Building Collapse Essential Service Strike
	Maritime Pollution Wildfire	Industrial Explosions and Fires Light Aircraft	Animal Disease Fuel Supply Constraint Transport Industrial Action	Volcanic Ash Inland Water Pollution Food Chain Contamination Influx of British Nationals	Loss of Telecommunications
				Large road accident	Cyber (Data Confidentiality)
	Likelihood				

3. London Risk Register – Hazards

Ref ID	Risk sub-category (Lead Assessor)	Outcome Description/ Variation and Further Information	Likelihood	Impact	Risk Rating	Controls in Place	Last Review / Next Review
Human Diseases / Human Health Incidents							
H 23	Influenza Type Disease (Pandemic)	One or more pandemic waves (weeks or months apart) lasting 12 - 15 weeks. Clinical attack rate of 25 to 50% spread over one or more waves with case fatality of up to 2.5%. Up to 750,000 excess deaths nationally across the whole period of the pandemic. Over 10,000 healthcare contacts per 100,000 population per week at peak. Probable peak 6 to 8 weeks following first UK case, with 22% of total cases occurring at this time.	4	4	Very High	NHS Vaccination Programme (Seasonal and provision for pandemic specific) Specific NHS capacity and response planning Comprehensive surveillance systems London Resilience Partnership Plans	Dec 2015 Dec 2017
H 24	Emerging infectious diseases	Based upon the experience of the outbreak of Severe Acute Respiratory Syndrome (SARS) in 2002, outbreak originating outside the UK with cases occurring amongst returning travelers, their families and close contacts. Possible spread to healthcare workers within hospital setting. Short term disruption to local hospital intensive care facilities. Possible disruption of several weeks to elective procedures. Possible international travel restriction and public concern about travel, within and beyond the UK. Some infections give a longer period in which to put effective control measure in place to prevent spread. Impact also dependant on effectiveness of pharmaceuticals in fighting infection.	3	3	High	NHS Vaccination Programme Specialist capability and capacity planning in NHS trusts Comprehensive surveillance systems and response arrangements London Resilience Partnership Plans	Dec 2015 Dec 2017

Flooding						
H 21	Severe inland flooding affecting more than 2 UK regions (Environment Agency)	Major fluvial flooding affecting a large urban area. Single or concurrent events following sustained rainfall over two weeks. Across urban areas flooding of up to 50,000 properties (homes & businesses) for up to 10 days. Up to 10 fatalities and 500 casualties and 20 missing persons. Up to 55,000 people needing assistance with evacuation. Up to 6,000 people in need of rescue or assistance in-situ. Closure of primary transport routes. Loss of essential services to 250,000 homes and businesses for up to 14 days. Significant regional economic damage. Evacuation and emergency sheltering required. 142,000 (22%) people requiring assisted sheltering for up to 5 days and 25% of displaced households need temporary accommodation for up to 12 months.	3	4 Very High	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	May 2014 Feb 2016
HL 18	Local / Urban flooding fluvial or surface run-off (Environment Agency)	Large towns threatened by flash flooding and/or steadily rising river levels across entire region. Localised flooding of up to 10,000 properties for 2-7 days. Up to 15 fatalities and 150 casualties. Up to 15,000 people evacuated. Up to 500 people stranded over a large area and in need of rescue. Up to 1,000 people needing assistance with sheltering for up to 12 months. Road and rail links impassable for up to 5 days. Loss of essential services to 20,000 homes for up to 14 days. Widespread disruption for 7-14 days. Sewage treatment works flooded. Up to 50 properties destroyed and many more uninhabitable. Localised economic damage and 6-18 months recovery time required.	4	4 Very High	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	May 2014 Feb 2016
HL	Local coastal /	Tidal surge, spring tides, gale force winds, heavy rainfall, some	2	5	Flood and Water Management Act 2010	

16	tidal flooding (affecting more than one Region) (Environment Agency)	defences overtopped or failing at multiple locations. Flooding of 1000 to 10,000 properties for up to 14 days. Up to 20 fatalities, 300 casualties and up to 200 missing persons. Possible large scale evacuation of up to 50,000 people required. People stranded over a large area and up to 5,000 people in need of rescue. Up to 10,000 people needing assistance with sheltering for up to 12 months. Structural damage to properties. Impact on infrastructure includes: widespread disruption for 7-14 days, salt damage, road and bridge damage, debris and contaminated water supplies, sewage treatment works flooded. Severe economic damage with 6-18 months recovery before business as usual conditions restored.	Very High	Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	May 2014 Feb 2016
H 19	Major coastal and tidal flooding affecting more than two UK regions (Environment Agency)	Tidal surge, gale force winds and potentially heavy rainfall resulting in overtopping or breach of defences causing widespread structural damage. As little as 1 hour to evacuate up to 300,000 properties (homes & businesses) for up to 14 days. People stranded over a large area. Up to 150 fatalities, 2000 'missing' persons and 2000 casualties. Up to 40,000 people in need of rescue or assistance in-situ over a 36 hour period. 142,000 (22%) of people flooded need assisted sheltering for up to 5 days and 25% of displaced households need temporary accommodation for up to 12 months.	2 5 Very High	Thames Barrier and Flood Prevention Act 1972. Flood and Water Management Act 2010 Metropolis Management (Thames River Prevention of Floods) Amendment Act 1879 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	May 2014 Feb 2016

L 19	Flooding from other sources	A rapid increase in volume of water in a localised area due to either; heavy rainfall, groundwater emergence or a burst water main which overwhelms the local drainage or river system, collects in low lying areas resulting in flooding of property or infrastructure.	4	3	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 Environment Agency Floodline and public warnings Met Office, National Severe Weather Warning Service Flood Guidance Statements	May 2014 May 2016
			High			
HL 17	Local coastal / tidal flooding (in one Region) (Environment Agency)	Tidal surge, high tides, gale force winds affecting leading to overtopping or failure of defences. Localised impact with infrastructure affected and up to 1000 properties flooded for up to 14 days. Up to 10 fatalities, 150 casualties and up to 100 missing persons. People stranded over a large area and up to 2,000 people in need of rescue. Up to 3,000 people needing assistance with sheltering for up to 12 months. Some local evacuation. Structural damage to properties. Impact on infrastructure includes: localised disruption for up to 7 days, salt damage, road damage, debris and contaminated local water supplies and pollutants from affected businesses.	3	3	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	May 2014 Feb 2016
			High			
HL 19	Local fluvial flooding (Environment Agency)	Localised flooding of 100 to 1,000 properties for 2-7 days. Up to 5 fatalities and 50 casualties. Up to 5000 people evacuated, up to 200 people stranded over a large area and in need of rescue. Disruption to transport with repairs taking considerable time. Waterways closed to traffic due to strong currents and high water levels. Sediment contamination of local water supplies. Localised loss of essential services for up to 5000 for up to 14 days. Up to 250 people needing assistance for up to 12 months. Substantial disruption for 7-14 days. Localised economic damage and 6-18 months recovery time required.	3	3	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	May 2014 Feb 2016
			High			

H 44	Major reservoir dam failure/collapse (Environment Agency)	Collapse without warning resulting in almost instantaneous flooding. Significant movement of debris and sediment. Complete destruction of some residential and commercial properties and serious damage of up to 500 properties. Several thousand other properties could be flooded. Up to 200 fatalities, up to 1000 casualties. Up to 50 missing persons and people stranded. Hazardous recovery amongst collapsed infrastructure and debris. Up to 200 people need temporary accommodation for 2 – 18 months. Extent of downstream effect could reach 50-60km. Significant damage to gas, electricity supplies, telecommunications, road and rail links.	2	5	Reservoirs Act, 1975 Water Act, 2003 Regular statutory inspections Met Office National Severe Weather Warning Service London Resilience Partnership Plans	Sept 2015 Sept 2017
			Very High			
Volcanic hazards						
H 54	Disruption to aviation as a consequence of volcanic ash (GLA)	Volcanic ash incursions for up to 25 days resulting in sporadic and temporary closures of significant parts of UK airspace for up to a total of 15 days during a 3 month eruption period. The entire UK mainland and potentially other parts of Europe could be affected for up to 10 of these days. A single period of closure within the 3 month eruptive episode may last for up to 12 consecutive days, depending on meteorological conditions.	4	2	Met Office Volcanic Ash Advisory Centre forecasting CAA Volcanic Ash Safety Regime Airline response plans	Dec 2014 Dec 2016
			Medium			
H 55	Severe effusive (gas rich) volcanic eruption overseas	A severe volcanic eruption, generating large amounts of gas, aerosol and ash over a 5 month period affecting the UK and Northern Europe.	TBC	TBC	This risk is yet to be assessed by London Risk Advisory Group.	June 2016 June 2017

Severe weather						
H 17	Storms & Gales. (Local Authorities)	Storm force winds affecting most of the South East England region for at least 6 hours. Most inland, lowland areas experience mean speeds in excess of 55 mph with gusts in excess of 85 mph. Up to 50 fatalities and 500 casualties with short term disruption to infrastructure including power, transport networks, homes and businesses.	3	3	Regular inspections of trees and highways for maintenance. Met Office National Severe Weather Warning Service Met Office Hazard Manager service Responder specialist resources	June 2014 Feb 2016
			High			
H 18	Low temperatures and heavy snow. (Local Authorities)	Snow falling and lying over most of the area for at least one week. After an initial fall of snow there is further snow fall on and off for at least 7 days. Most lowland areas experience some falls in excess of 10cm, a depth of snow in excess of 30cm and a period of at least 7 consecutive days with daily mean temperature below -3°C. Up to 1000 fatalities (excess deaths) and thousands of casualties, mainly amongst the elderly and there is likely to be some disruption to transport networks, businesses, power supply and water supply, and also school closures.	3	3	Highways Act 1980, Railways and Transport Act 2003 Government's 'Snow Code' Specific plans for traffic management and transport resilience Coordination of gritting and salt stocks Met Office National Severe Weather Warning Service Responder specialist resources RE:NEW retrofitting programme	June 2014 Feb 2016
			High			
H 50	Drought (Environment Agency)	Periodic water supply interruptions affecting 385 000 businesses in London for up to 10 months. Emergency Drought Orders in place authorising rota cuts in supply according to needs of priority users as directed by Secretary of State. The 2.24 million households in London would not be subjected to supply interruptions. A drought of this severity is unprecedented and would take at least 3 dry winters to develop.	2	4	Water Resources Act 1991 Floods & Water Management Act 2010 Progressive restraints on consumption to preserve supply for critical services Storage reservoirs	June 2014 Feb 2016
			High			

H 48	Heatwave (Health)	Daily maximum temperatures in excess of 32°C and minimum temperatures in excess of 15°C over most of a region for at least 5 consecutive days. Up to 1000 fatalities and 5000 casualties mainly amongst the elderly. There could be disruption to power supply and transport infrastructure. The heatwave event definition is based on and August 2003 type event, but more severe. There will be subsequent impact on electricity generation and cooling systems. Currently in the London area the summer peak demand is higher than winter due to building air conditioning systems.	4	3	Health & Safety at Work Act 1974 Public Health Act Heatwave Plan for England London Resilience Partnership Plans Climate Change Adaption Strategy for London Heat-Health Watch – annually June to September Air quality forecasts	June 2014 Feb 2016
			High			

Structural Incidents						
HL 21	Land movement (London Fire Brigade)	Caused by Landslides or tremors. Roads and access routes impassable for a time. Emergency access into/out of large populated areas difficult or impossible; severe congestion over wide geographical area. Loss of power and other essential services over wide geographical area. Potential for a number of persons to be trapped or missing either in landslides itself and/or in collapsed structures. Up to 5 fatalities depending on the size and location of land movement. Such incidents are rare within the UK with some areas being more prone to landslides than others.	1	3	Land use planning restrictions Building Control regulations enforced by Local Authorities. Construction, renovation, maintenance and demolition standards	Feb 2015 Feb 2017
			Medium			

Severe space weather						
H 56	Severe space weather (GLA)	Disruption to two coastal electrical substations serving approximately 100,000 customers each for two or more months . Consumers would experience a loss of supply for up to half of this period, and rota disconnections may be used during the following four weeks. Disruption to satellite services for several days including interruptions and degradations to GPS, potentially resulting in casualties and fatalities. Up to 2 weeks disruption to aviation (including increased error rates in flight control and air traffic systems) and temporary loss of wireless systems including mobile phones and internet. Increase in error rate in ground based unprotected digital control systems which are ubiquitous in modern technology, for the duration of the storm.	3	3 High	Electricity Industry monitoring and analysis of GIC Space Weather is assessed as part of the Daily Hazards Assessment National Grid design standards and response arrangements Alternative positioning, navigation and timing signal systems Forecasting through Met Office Space Weather Operations Centre	Dec 2014 Dec 2016
Severe wildfires						
H 58 and HL 33	Forest or moorland fire (London Fire Brigade)	Forest or moorland fire across up to 1500 hectares over a period of 7-10 days. Evacuation of between 100 and 3000 homes. Up to 10 fatalities and 100 casualties.	1	2 Low	London Fire Brigade borough specific rural strategies Specialist fire fighting equipment and resources	Feb 2015 Feb 2017

Animal Diseases / Animal Health Incidents						
H 25	Non-zoonotic Notifiable animal diseases (Local Authorities)	Disease introduced into a predominantly sheep area and infected animals sold at market or moved to other premises before disease is detected resulting in widely dispersed multiple outbreaks. Assessment based on the need to cull and dispose up to 4 million animals with up to 900 infected premises across UK. Movement of all susceptible livestock prohibited unless licensed. Economic and reputational losses to the agriculture and food chain industry. Loss of disease free status resulting in EU and third country import bans on livestock and livestock products from susceptible animals.	3	2 Medium	Animal Health Act 1981 Animal Health Act 2002 Other secondary legislation and EU directives National disease control strategies	May 2015 May 2017
H 26	Zoonotic Notifiable animal diseases (Local Authorities)	The most significant disease in this category is Highly Pathogenic Avian Influenza. The major outbreak scenario is of much greater scale than that experienced in any of the recent outbreaks of avian influenza in the UK, where the disease has been contained and has been limited to one or two infected premises plus associated contact premises. Need to cull and dispose of up to 30 million poultry across UK. Loss of disease free status resulting in EU and third country import bans on poultry, captive birds and poultry products. Disruption to communities, local economies, tourism and the environment. Economic impacts for a major outbreak assessed at £60 million.	3	2 Medium	Animal Health Act 1981 Animal Health Act 2002 Other secondary legislation and EU directives National disease control strategies	May 2015 May 2017

4. London Risk Register – Major accidents / incidents

Major industrial accidents / Industrial and Environmental Pollution Incidents						
HL 3	Localised industrial accident involving small toxic release (London Fire Brigade)	Up to 1km from site causing up to 10 fatalities and up to 100 casualties.	3	3	Control of Major Accident Hazards Regulations 2005 (COMAH) Regulatory Reform (Fire Safety) Order 2005 London Resilience Partnership Plans	May 2015 Feb 2017
			High			
			High			
HL 12	Local accident involving transport of hazardous chemicals (London Fire Brigade)	Up to 50 fatalities and up to 500 casualties (direct injuries from the accident would be similar to road or rail accidents; indirect casualties are possible, if substance covers wide area). The extent of the impact would depend on substance involved, quantity, nature and location of accident. The assumption is based on phosgene / chlorine.	2	4	Carriage of Dangerous Goods by Rail Regulations 1996 Packaging, Labelling and Carriage of Radioactive Material by Rail Regulations 2002 Radioactive Material (Road Transport) Regulations 2002 Air Navigation (Dangerous Goods) Regulations 1994 Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1990 Specialist Emergency Services and other responder equipment and resources	May 2014 May 2016
			High			

H 4	Fire/explosion at a fuel distribution or storage site toxic liquids in atmospheric pressure storage tanks (London Fire Brigade)	Up to 3km around sire causing (from 10) up to 150 fatalities and (100 to) 2000 casualties. Might be disruption to air transport in the short-term until fuel supply re-directed. Short-term regional excessive demands on health core services. Closure of roads in locality for a short period of time.	1	5	Control of Major Accident Hazard 1999 (COMAH) Regulations. The Dangerous Substances and Explosive Atmosphere Regulations 2002 Petroleum Regulations Regulatory Reform (Fire Safety) Order 2005 Site Operators on-site contingency plans Emergency Services specialist resources	Feb 2015 Feb 2017
			High			
H 9	Large toxic chemical release (London Fire Brigade)	Up to 3km from site of toxic chemical release causing up to 50 fatalities and up to 2000 casualties from a large industrial complex or bulk storage of chemicals near to a populated (i.e. urban) area. There are some sites of this nature within the M25. Depending on the nature and extent of the contamination there could be impacts on air, land water, animal welfare, agriculture and waste management. This risk might require decontamination. Excessive demands on health care services locally both short and long term. Risk to water supplies and contamination of farm land could lead to avoidance of foodstuffs.	1	5	Control of Major Accident Hazards Regulations 2005 (COMAH) Regulatory Reform (Fire Safety) Order 2005 Emergency Services and other responder specialist resources London Resilience Partnership Plans	May 2015 Feb 2017
			High			

HL 4	Major pollution of inland waters (Environment Agency)	Pollution incident impacting upon inland waters (for example, could be caused by chemical spillage or release of untreated sewage) leading to persistent and/or extensive effect on water quality, major damage to aquatic ecosystems, closure of potable abstraction, major impact on amenity (i.e. tourism) value, serious impact on human health. Major sewage pollution could occur as the result of a failure of electric supply.	4	2	Environment Act 1995 Water Resources Act 1991 Environmental Protection Act 1990 Pollution Prevention and Control Act 1999 Control of Major Accident Hazards Regulations 1999 The Environmental Permitting Regulations (England and Wales) 2010 Groundwater Regulations 1998 Anti-Pollution Works Regulations 1999 Environmental Permitting Regulations 2010 Inspections and compliance monitoring undertaken by appropriate regulatory body 24 hour incident hotline and response system Pollution control equipment and resources	March 2015 March 2017
			Medium			
HL 28	Localised fire or explosion at a fuel distribution site or tank storage of flammable and/or toxic liquids. (London Fire Brigade)	Up to 1km around the site, causing up to 15 fatalities and 200 casualties. Impact on environment, including widespread impact on air quality.	2	3	Control of Major Accident Hazard 1999 (COMAH) Regulations. The Dangerous Substances and Explosive Atmosphere Regulations 2002 Petroleum Regulations Regulatory Reform (Fire Safety) Order 2005 Site Operators on-site contingency plans Emergency Services specialist resources	May 2012 Feb 2015
			Medium			

H 12	Biological substance release from facility where pathogens are handled deliberately (Health)	Up to 10 fatalities and serious injuries or off-site impact causing up to 1,000 casualties. Assume release in an urban area. Pathogen release from containment – example SARS release from lab in China resulted in 2 deaths & several hundred people quarantined. This type of release could be the source of an outbreak that leads to H23-H26 risks.	2	3	Medium	Animal Health Act 1981 Specified Animal Pathogens Order 1998 Health & Safety at Work etc Act 1974 Control of Substances Hazardous to Health Regulations 2000 Management of Health & Safety at Work Regulations 1999 Reporting of Injuries Diseases and Dangerous Occurrences Regulations Carriage of Dangerous Goods (Classification, Packaging and Labelling Regulations Genetically Modified Organisms (Contained Use) Regulations 2000 Regulation, audit and enforcement of legislation by HSE London Resilience Partnership Plans	June 2011 Feb 2016
HL 14	Local (road) accident involving transport of fuel/explosives (London Fire Brigade)	Up to 30 fatalities and up to 20 casualties within vicinity of accident/explosion. Area would require evacuating up to 1 km radius depending on substances involved. Potential release of up to 30 tonnes of liquid fuel into local environment, watercourses etc. Large quantities of fire fighting media (foam) could impact on environment. Roads and access routes impassable for a time. Emergency access into/out of large populated areas becomes difficult or impossible.	2	3	Medium	Carriage of Dangerous Goods by Rail Regulations 1996 Packaging, Labelling and Carriage of Radioactive Material by Rail Regulations 2002 Radioactive Material (Road Transport) Regulations 2002 Air Navigation (Dangerous Goods) Regulations 1994 Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1990 Specialist Emergency Services and other responder equipment and resources	May 2014 May 2016

HL 25	Fire or explosion at a flammable gas terminal including LPG/LNG storage sites. (London Fire Brigade)	Up to 1km around site, causing up to 50 fatalities and 150 casualties. Gas terminal event likely to be of short duration once feed lines are isolated; event at a storage site could last for days if the explosion damaged control equipments. Impact on environment, including widespread impact on air quality.	1	3	Control of Major Accident Hazard 1999 (COMAH) Regulations Pipeline Safety Regulations 1996 cover the pipelines feeding the gas holders. Site Operators on-site contingency plans Multi Agency off-site COMAH Plans Major Accident Hazard Pipeline (MAHP) Plan Emergency Services specialist resources	May 2015 Feb 2017
			Medium			
HL 7	Industrial explosions and major fires (London Fire Brigade)	Up to 1km around site, causing up to 20 casualties, some of a serious nature. Explosions would cause primarily crush / cuts and bruise-type injuries, as well as burns.	2	2	Legislation: Control of Major Accident Hazards (COMAH) Regulations 1999 Regulatory Reform (Fire Safety) Order 2005 Building design and fire protection systems to prevent or limit the spread of fire Emergency Services and other responder specialist resources	May 2015 Feb 2017
			Medium			

H 5	Fire or explosion at an onshore fuel pipeline (London Fire Brigade)	Up to 1km around site causing up to 100 fatalities and 500 casualties. A release point close to a populated (i.e. urban) area. Impact on environment, including persistent/widespread impact on air quality.	1	3	Requisitioned Land and War Works Act 1948 The Land Powers (Defence) Act1958 Shell-Mex and BP (London Airport Pipeline) Act 1959 Esso Petroleum Company Act 1961 Pipelines Act 1962 Pipeline Safety Regulations 1996 Control of Major Accident Hazards (COMAH) Regulations 1999 Emergency Services specialist resources	May 2015 Feb 2017
			Medium			
H 7	Explosion at a high pressure natural gas pipeline (London Fire Brigade)	Local to site causing up to 200 fatalities and up to 200 casualties. Impact on environment, including persistent/widespread impact on air quality.	1	3	Pipeline Safety Regulations 1996 Regulatory and industry measures including provision of maps for excavation Emergency Services and other responder specialist resources	May 2015 May 2017
			Medium			
HL 30	Localised explosion at a natural gas main. (London Fire Brigade)	Causing up to 100 fatalities and up to 100 casualties.	1	3	Pipeline Safety Regulations 1996 Regulatory and industry measures including provision of maps for excavation Emergency Services and other responder specialist resources	May 2015 May 2017
			Medium			

H 11	Accidental release of radioactive material from incorrectly handled or disposed of sources. (Environment Agency)	Up to five fatalities and up to 100 contaminated people requiring medical monitoring. Many worried people may present at hospitals. Radiation may be spread over several km but concentration where source is opened. Depending on the nature and extent of the contamination there could be impacts on air, land, water, animal welfare, agriculture and waste management. This risk may require decontamination. Assume radioactive material is a medical source from radiotherapy machine.	1	4 Medium	Radioactive Substances Act 1993 High Activity Sealed Source Regulations 2005 Arrangements for safe handling and disposal of radioactive sources Radiation detectors at high risk sites Environment Agency inspections of all major sources Emergency Services specialist resources London Resilience Partnership Plans	Mar 2015 Mar 2017
H 14	Major contamination incident with widespread implications for the food chain, (Local Authorities)	There may be direct animal and consumer health effects arising from this incident. Assume a small number of fatalities (5) and casualties (50), although the public health implications of food incidents vary widely. Additionally, there may be food production/marketing implications, depending on the scale and area affected. Consumer confidence may also be affected leading to lost markets and, where staple products (e.g. bread or milk) are affected, potential panic buying. Could arise from: 1. Industrial accident (chemical, microbiological, nuclear) affecting food production areas e.g. Chernobyl, Sea Empress oil spill, animal disease. 2. Contamination of animal feed e.g. dioxins, BSE. 3. Incidents arising from production processes, e.g. adulteration of chilli powder with Sudan I dye or melamine contamination of milk.	4	2 Medium	EC Directives and Regulations: Regulation (EC) 852/2004 Regulation (EC) 853/2004 Regulation (EC) 854/2004 Food Safety Act 1990 Imports monitored Local Authority Environmental Health Sampling Public Health England monitoring and surveillance Food Standards Agency plans	Mar 2015 Mar 2017

H 15	Maritime pollution (Maritime and Coastguard Agency)	Spillage of 100,000 tonnes of crude oil into the Thames estuary polluting up to 200 km of coastline. Release of sufficient pollutant into the river, with contamination of embankments and river structures, to result in a Tier 2 or Tier 3 pollution response within the port. Pollution may arise from an incident within the London Resilience area, or from an incident further east with pollution being spread upriver on a series of tidal cycles.	1	2	Dangerous Substances in Harbour Areas Regulations 1987. Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998. Port State Control checks coordinated in European waters All vessels navigating on the tidal Thames required PLA licence PLA Vessel Traffic Service National Contingency Plan for Marine Pollution from Shipping and Offshore Installations (2000) Oil Spill Contingency Plan Guidelines for Ports, Harbours & Oil Handling Facilities Specialist equipment for response	Feb 2015 Feb 2017
			Low			
HL 37	Release of significant quantities of hazardous materials as a result of major shipping accident (Maritime and Coastguard Agency)	Fatalities and casualties unlikely. Significant environmental damage would depend on substance involved, quantity, nature and location of accident.	1	2	Port of London River Byelaws 1978 Dangerous Substances in Harbour Areas Regulations 1987 Dangerous Substances in Bulk Byelaws 1991 Merchant Shipping (Oil Pollution Prevention, Response and Cooperation Convention) Regulations 1998 Navigation safety monitored by Vessel Traffic System at the Thames Barrier Navigation Centre PLA Dangerous Substances in Bulk Byelaws 1991 Specialist response equipment and resources	May 2014 May 2016
			Low			

Major industrial accidents / Major structural accidents						
HL 22a	Large Building Collapse (Local Authorities)	Collapse of a large building (high-rise block, shopping mall etc). Up to 100 fatalities depending on the size and construction of building, and occupation rates, and 350 casualties. Potential for a number of persons to be trapped or missing. Localised loss of power and other essential services. Local access routes affected due to road closures.	1	3	Building Control regulations enforced by Local Authorities Construction, renovation, maintenance and demolition standards and enforcement Emergency Services and other responders specialist resources London Resilience Partnership Plans	Sept 2015 May 2017
			Medium			
HL 105	Complex Built Environments (Local Authority)	A consequence of a major incident affecting large buildings / complex built environments. Incidents in these facilities have the potential to trigger a complex chain of events that lead to serious consequences for public.	2	3	Health and Safety at Work Act 1974. Management of Health & Safety at Work Regulations 1999. Fire and Rescue Services Act 2004 & guidance pursuant to the Regulatory Reform (Fire Safety) Order 2005. Safety at Sports Grounds Act 1975 and Fire Safety and Safety of Places of Sport Act 1987 Local building safety systems and practices Safety Advisory Groups in place at major sports grounds London Resilience Partnership Plans	Dec 2015 Dec 2017
			Medium			
HL 22	Building Collapse. (Local Authorities)	Collapse of low rise building, or part thereof. Potential for a number of persons to be trapped or missing. Localised loss of power and other essential services. Local access routes affected due to road closures. Up to 5 fatalities and 20 casualties depending on the size and construction of building, and occupation rates. A number of such incidents annually within London.	5	2	Building Control regulations enforced by Local Authorities Construction, renovation, maintenance and demolition standards and enforcement Emergency Services and other responders specialist resources London Resilience Partnership Plans	May 2015 May 2017
			Medium			

HL 23	Bridge Collapse. (Local Authorities)	Roads, access roads and transport infrastructure impassable for considerable length of time. Severe congestion over wide geographical area. Emergency access into / out of large populated areas severely restricted. Potential for a number of persons to be trapped or missing.	1	3	Building Control regulations enforced by Local Authorities Highways Act Regular inspections Height and weight restrictions and signs reduce the likelihood of an incident London Resilience Partnership Plans	Dec 2015 Dec 2017
			Medium			

See also: **H 44** – Flooding/Major Reservoir Dam Failure and **H 21** – Structural Incidents/Land Movement

Major industrial accidents / Technical failures						
H 41	Technical failure of national electricity network - Blackstart (London Fire Brigade)	Total blackout for up to 3-5 days due to loss of the National Grid. Possible loss of life support machines, civil unrest, no alarms, street lighting, gas heating, rail transport, water supplies and mobile telecommunications etc. Back up generators available for limited time for individual businesses and emergency services in some instances. "Power Islands" created over the first day. Most of the country reconnected within three days, London late on in the process. Peak demand not able to be met after three days.	2	5	Testing and maintenance regime National Emergency Plans London Resilience Partnership Plans	Sept 2014 Sept 2016
			Very High			
H 45	Technical failure of electricity network due to operational error or bad weather causing damage to the system. (London Fire Brigade)	Total shutdown of the electricity supply in Greater London occurring during working week and lasting for 24hours. Damage to distribution overhead lines meant that many customers remained without a supply for several days before repairs could be completed. An event of this kind occurred in October 1987 when severe storms led to the electricity transmission network in the south east being shut down.	3	4	Testing and maintenance regime National Emergency Plans Mutual aid resources available London Resilience Partnership Plans	Sept 2014 Sept 2016
			Very High			

H 38	Disruption in upstream oil and gas production (London Fire Brigade)	Catastrophic accident destroying all parts of a critical upstream facility and, in the worst case, taking months or more to restore to normal levels of service. This could potentially result in <11% loss of gas supply to the UK which could impact on power generation if demand were high. As 40% of power is generated by gas fired stations then a reduction in generation might be felt. Downstream oil would not be immediately so adversely affected given alternative means of supply.	2	4	National Emergency Plan for Fuel National Blackstart Plan London Resilience Partnership Plans	Sept 2014 Sept 2016
			High			
H 39	Non-availability of piped water supply (London Fire Brigade)	Non-availability of piped water supply for up to 50,000 people, for between 1- 3 days. Domestic, industrial, commercial and agricultural premises without piped water. Fire tenders cannot be refilled from hydrants within the affected area. Resupply via bowsers or bottled water. Priority given to vulnerable customers. Liaison with local health and social services ensures that details of such customers are complete at the time of the incident. Water companies are also required to give priority to hospitals and schools. Due regard required for livestock and essential food industries. May not be possible to continue a full service at hospitals, schools and businesses etc that do not maintain their own on-site water storage.	2	3	Water Industry Act 1991 Security and Emergency Measures Direction 1998 Water companies mutual aid arrangements in place London Resilience Partnership Plans	Sept 2014 Sept 2016
			Medium			
H 40	No notice loss of significant telecommunications infrastructure in a localised fire, flood or gas incident. (Metropolitan Police Service)	Loss of service to up to 100,000 people for up to 72 hours Building damage to a large urban telecoms facility. Possible impact on emergency services including disruption to proposed Emergency Services Control Centres. Possible accidental cutting of submarine cables.	2	2	Civil Contingencies Act 2004 Telephone provider demand and network capacity management strategies National Emergency Alert for Telecoms London Resilience Partnership Plans	Sept 2014 Sept 2016
			Medium			

H 49	Loss of drinking water supplies due a major accident affecting infrastructure (Local Authorities)	Non-availability of piped water supply to domestic, industrial, commercial and agricultural premises, for a population of up to 350,000 for more than 24 hours and up to 2 weeks. Fire tenders can not be refilled from fire hydrants within the affected area. Severe logistical difficulties in resupply of bottled water/bowsers even using mutual aid from other water companies. Suspension of hospital and school services. Food industries within the impacted zone may close. Human population given priority over animals and livestock.	1	4	Water Industry Act 1991 Security and Emergency Measures Direction 1998 Water companies mutual aid arrangements in place London Resilience Partnership Plans	Dec 2014 Dec 2016
			Medium			

Major Transport accidents / Incidents						
HL 11	Railway Accident (British Transport Police)	Up to 30 fatalities and up to 100 casualties (fractures, internal injuries – burns less likely). Possible loss of freight. Major disruption to rail line including possible closure of rail tunnel.	2	3	Railway and Transport Safety Act 2003 Railways (Access and Management) Regulations 2005 Railways (Accident Investigation and Reporting) Regulations 2005 Railways (Licensing of Railway Undertakings) Regulations 2005 Railways Act 2005 and 1993 The Railway Safety Levy Regulations 2006 Transport Act 2000 Heath and Safety at Work (etc) Act 1974 The Railway (Safety Case) Regulations 2000 Improved inspection regimes to detect track defects Train Protection Warning Systems ATOC Guidance and Directives Specialist Emergency Services and other responder resources	May 2014 May 2016
			Medium			

HL 9	Aviation accident (London Fire Brigade)	Aviation accident causing up to 50 fatalities and up to 250 casualties. Accident involving one commercial aircraft, probably on take off or landing.	2	3	Stringent controls on aircraft entering UK Airspace including the mandatory use of Aircraft Collision Avoidance systems on heavy aircraft UK flight separation rules CAA Maintenance and Flight safety standards Airline maintenance regimes London Resilience Partnership Plans	May 2014 May 2016
			Medium			
HL 34 and HL 8	Incident involving a passenger vessel in or close to UK waters leading to the ship's evacuation or partial evacuation (Maritime and Coastguard Agency)	Up to 50 fatalities and up to 100 casualties. The risk is based on an accident to a typical passenger vessel visiting London, or a large Class V vessel (<600 passengers) operating in central London.	1	3	Port of London Act 1968 (as amended). General Directions for Navigating in the Port of London 2009. Port of London River Byelaws 1978. Port State Control checks coordinated in European waters Compulsory PLA pilotage for visiting cruise ships PLA Vessel Traffic Management System and coordination with Thames Barrier Navigation Centre Provision of life saving equipment on river banks and specialist response resources	May 2014 May 2016
			Medium			
H 16	Aviation accident over a semi-urban area (London Fire Brigade)	Collision of two commercial airliners - death of all passengers and crew on aircraft (600 fatalities), up to 50 fatalities and 300 casualties on the ground. Significant debris field but no significant damage to key infrastructure.	1	4	Stringent controls on aircraft entering UK Airspace including the mandatory use of Aircraft Collision Avoidance systems on heavy aircraft UK flight separation rules CAA Maintenance and Flight safety standards Airline maintenance regimes London Resilience Partnership Plans	May 2014 May 2016
			Medium			

HL 9b	Small Aircraft Incident	A light aircraft is an aircraft that has a maximum gross take off weight of 12,500 lb (5,670 kg) or less. Many light aircraft are used commercially for passenger and freight transport, sightseeing, photography, and other similar roles as well as personal use. This covers an accident involving one commercial aircraft, probably on take off or landing.		Stringent controls on aircraft entering UK Airspace including the mandatory use of Aircraft Collision Avoidance systems on heavy aircraft UK flight separation rules CAA Maintenance and Flight safety standards Airline maintenance regimes London Resilience Partnership Plans	May 2014 May 2016
HL 10	Local accident on motorways and major trunk roads (Metropolitan Police Service)	Multiple vehicle incident causing up to 10 fatalities and up to 20 casualties; closure of lanes or carriageways causing major disruption and delays.	4 1 Low	Road Traffic Act 1988 Road Vehicle (Construction and Use) Regulations 1986 Traffic Management Act 2004 VOSA patrols to enforce legislation London Resilience Partnership Plans	May 2014 May 2016

See also **HL 37** – Major Industrial Accidents/Release of hazardous chemicals as a result of shipping accident and **HL 14** – Major Industrial Accidents/ Road accident involving transport of fuel /explosives

Disruptive industrial action					
HL 42	Loss of cover due to industrial action by workers providing a service critical to the preservation of life (GLA)	A number of three day strikes with significant support over a two month period affecting a single emergency service.	5 3 High	Police Act (1996) RCN Code on Industrial Action Standards of conduct, performance and ethics for nurses and midwives Alternative emergency cover protocols for the Fire Brigade Organisational Business Continuity Arrangements	Dec 2015 Dec 2017

H 30	Emergency services: loss of emergency fire and rescue cover because of industrial action. (GLA)	A series of strikes by fire fighters takes place, spread over a period of two months, perhaps lasting up to 48 hours each. London, and possibly other metropolitan areas, would have only very thin cover. Assumes no military assistance.	5	3	Police Act (1996) RCN Code on Industrial Action Standards of conduct, performance and ethics for nurses and midwives Alternative emergency cover protocols for the Fire Brigade Organisational Business Continuity Arrangements	Dec 2015 Dec 2017
			High			
H 31	Significant or perceived significant constraint on fuel supply at filling stations (Metropolitan Police Service)	Filling stations, depending on their locations, would start to run dry between 24 - 48 hours. Panic buying would exacerbate the situation. Replenishment of sites would take between 3 - 10 days depending on location much would depend on whether drivers from other companies would be prepared to cross picket lines, whether companies judged that they were able to maintain safe operations in the presence of picket lines or protests, and the extent of the supply of fuel from other locations.	3	2	Legal requirements re: conduct of industrial disputes. Stocks of contingency fuel to varying degrees National Emergency Plan for Fuel London Resilience Partnership Plans	Dec 2015 Dec 2017
			Medium			
H 35	Industrial action by key rail or London Underground workers. (British Transport Police)	Strike action resulting in the total shut down of either London Underground or the rail network on a national scale (e.g. action by key rail workers, e.g. infrastructure workers such as signallers) for > 3 days. Greater impact if action occurs in a co-ordinated manner.	3	2	Heath and Safety at Work Act 1974. Employment Act 1980. Employment Act 1988. Public Order Act 1986. Trade Union and Labour Relations (Consolidation) Act 1992. Anti-Social Behaviour Act 2003. Organisational Business Continuity Arrangements	Dec 2015 Dec 2017
			Medium			

H 33	National strike by prison officers	Unofficial strike lasting more than 24 hours and resulting in a shortfall in personnel available to operate prisons, resulting in likely indiscipline and disruption to the Criminal Justice System.		This risk is yet to be specifically assessed by London Risk Advisory Group. Nationally this is considered a LOW risk.	**TBC**

Public and Crowd Events					
London is host to a wide number and variety of public events which attract people from all over the world. These events are subject to specific risk management measures through Safety Advisory Groups coordinated by relevant Local Authorities. Whilst events do not constitute an emergency in their own right, they provide the potential for one or more of the risks in the London Risk Register to occur. The London Risk Advisory Group therefore encourages all event organisers to consult the available guidance to help ensure safe events in London Further guidance: Green Guide to Safety at Sports Grounds and Purple Guide to Health Safety and Welfare at Music and Other Events					
H 37	Influx of British Nationals not normally resident in the UK. (Local Authority)	Up to 10,000 British nationals not normally resident in the UK, returning to UK within a 4 – 6 week period following conventional war, widespread civil unrest or sustained terrorism campaign against British and other Western nationals.	4 2 Medium	Local Authority emergency housing arrangements however response to this risk coordinated through FCO at a national level. Heathrow TravelCare access to specialist services Voluntary sector support to FCO response	May 2015
H 57	Public Disorder	Large scale public disorder in multiple sites in a single city occurring concurrently over several days.		The risk assessment for this risk is yet to be approved by the Metropolitan Police. Nationally this is considered a MEDIUM risk.	Dec 2015 June 2016

5. London Risk Register – Malicious Attacks

Attacks on crowded places					
X 1	Attacks on crowded places	Crowded places remain an attractive target for a terrorist attack. Crowded places by their nature are easily accessible and offer the prospect for an impact beyond the loss of life alone. Attacks are often (but not always) carried out without prior warning.	4 3 High	• Work of counter terrorism security advisors to raise awareness and provide training • Physical security measures where appropriate • Emergency services response plans • Emergency services specialist resources	Dec 2015 Dec 2017
Attacks on infrastructure					
X 2	Attacks on infrastructure	Many of the impacts which could result from industrial accidents, technical failure or severe weather could also result from a terrorist attack on infrastructure. The risk and impact vary according to the criticality of the infrastructure assets affected. Cyber attacks are not incorporated in this risk assessment (see subsequent section).	3 3 High	• Business continuity plans for loss of essential services helps minimise disruption • Well established programme of work to protect infrastructure from terrorism including protective security advice from Centre for the Protection of National Infrastructure and local Police services.	Dec 2015 Dec 2017
Attacks on transport system					
X 3	Attacks on transport system	Conventional attacks on transport systems are judged to be the more likely (however the likelihood of them affecting any one individual is still extremely low). This is supported by evidence from around the world. Attacks on transport can take different forms and result in different levels of impact. Stringent security measures are in place at airports. Most rail and underground systems are more open and therefore attractive potential targets. To date no attack against maritime interests in the UK has been mounted by terrorists.	5 3 High	• Regulation and security processes of individual public transport sectors • Contingency plans developed by operators in conjunction with responders	Dec 2015 Dec 2017

Unconventional Attacks (small scale and catastrophic)						
X 4	Small Scale Unconventional Attacks	Mass impact terrorist attacks, whilst unlikely, cannot be ruled out. The likelihood of terrorists successfully undertaking an attack against a nuclear or chemical facility or obtaining chemical, biological, radiological (CBR) or nuclear materials remains low, but not negligible. If such attacks were successful, their potential impact on the UK would be severe and significantly greater than a conventional attack. The potential impacts of an incident involving CBR agents will depend on a range of factors including type and quantity of CBRN materials used. This could range from small-scale (assassination or poisoning) to mass-impact (widespread dispersion and contamination) which is reflected in the scores.	3 3 High	• Well developed specialist response capability • Access to medical-countermeasures	Dec 2015
X 5	Catastrophic Unconventional Attack		2 5 Very High		Dec 2017
Cyber security						
X 6	Cyber security (Infrastructure)	Increasing reliance on cyber space brings new opportunities and new threats. The very openness of the networks presents a vulnerability of compromise or damage to networks from the actions of hackers, criminals or foreign intelligence services. The two assessments cover risks of cyber attack against infrastructure and cyber attacks resulting in a loss of data confidentiality. Impacts of both types of cyber attack could include economic and societal disruption. While terrorists can be expected to continue to favour high-profile physical attacks, the possibility that they might also use cyber space to facilitate or mount an attack is growing.	2 3 Medium	• National Cyber Security Programme • Additional outreach to businesses and public regarding cyber threats and security • National Cyber Crime Unit • Centre for Protection of National Infrastructure providing security advice	Dec 2015
X 7	Cyber security (Data Confidentiality)		5 1 Low		Dec 2017

6. Risks Not Applicable and Removed

The risks below are currently considered by the London Risk Advisory Group to be 'not applicable' to the London Resilience area at the current time. As risk assessment is a dynamic process the status of these risk is re-assessed on a regular basis.

ID	Risk sub-category	Rationale for Not Applicable Status
H1	Fire or explosion at a gas LPG or LNG terminal or flammable gas storage site.	Deemed not applicable to London as no sites meeting this description. Flammable gas storage covered in HL25 assessment
HL1	Fire or explosion at a gas terminal or involving a gas pipeline.	Covered by H7 and HL30 assessment.
H2	Fire or explosion at an onshore ethylene gas pipeline.	Deemed not applicable to London due to no ethylene gas pipelines
HL26	Localised fire or explosion at an onshore ethylene gas pipeline	Deemed not applicable to London due to no ethylene gas pipelines
H3	Fire or explosion at an oil refinery	Deemed not applicable to London due to no oil refineries
HL27	Localised fire or explosion at an oil refinery	Deemed not applicable to London due to no oil refineries
H6	Fire or explosion at an offshore oil/gas platform	Deemed not applicable to London due to no offshore Oil or gas platforms
H 103	Fire or explosion at a gas LPG or LNG terminal (or associated onshore feedstock pipeline)	The nearest gas terminal to a London LRF is Bacton, Norfolk, Therefore this risk is not applicable to London.
H8	Very large toxic chemical release	No such facilities with London area.
HL 104	Fire or explosion at a gas LPG or LNG terminal (or associated onshore feedstock pipeline)	The nearest gas terminal to a London LRF is Bacton, Norfolk, Therefore this risk is not applicable to London.
HL2	Localised industrial accident involving large toxic release (e.g. from a site storing large quantities of chlorine).	Not Applicable as incorporated in H4, H9 and HL3
H 10	Radioactive substance release from a nuclear reactor.	Deemed not applicable to London due to no nuclear reactors
HL31	Limited radioactive substance release from a nuclear accident.	Deemed not applicable to London due to no nuclear reactors
H 42	Rapid accidental sinking of a passenger vessel in or close to UK waters.	This outcome covered in Risk Assessment for HL34 and HL8.
HL13	Maritime accident or deliberate blockage resulting in blockage of access to key port, estuary, maritime route for more than one month	This risk deemed not applicable to London by London Risk Advisory Group.
H 22	Influenza Epidemic	Removed 2013: Advice from Public Health England is that this would not be considered a 'bad seasonal flu outbreak' and would be dealt with

ID	Risk sub-category	Rationale for Not Applicable Status
		using normal arrangements.
H 24a	Legionnaires Disease	Removed 2013: Advice from Public Health England is that this would be dealt with using normal outbreak arrangements.
H 24b	Meningococcal Disease	Removed 2013: Advice from Public Health England is that this would be dealt with using normal outbreak arrangements.
HL 102	Oak Processionary Moth	Removed 2013: Advice from Public Health England is that there is minimal human health risk and this can therefore be removed from the London Risk Register.
H39	Failure of water infrastructure	Removed 2014: consequences amalgamated into H49 assessment
HL20	Flash Flooding	Removed 2014: Advice from Environment Agency that London doesn't have the geography for this risk.
H46	Biological substance release during an unrelated work activity/industrial process	Removed 2015: Advice from PHE that this is managed as part of routine arrangements and unlikely to manifest to the extent in the outcome description

Appendix 1 - The 6 Stage Risk Assessment Process

1. Contextualisation

A range of factors influence the assessment of both likelihood and impact of risks. Demographics, transportation and environmental factors all exert an influence on how a risk would manifest in a particular area. Each of the 33 Borough Resilience Forums in London uses this local context to develop their own risk assessments..

2. Hazard Identification and allocation for assessment

London Risk Advisory Group identifies the threats and hazards that, in their view, could give rise to an emergency within London in the next 5 years.

Identified lead assessors then undertake Individual Risk Assessments for each risk prior to multi-agency discussion. Risks included in the London Risk Register are subject to a scheduled review programme to ensure that each risk is revisited and updated periodically.

3. Risk analysis

Drawing on guidance from Government, other research and local knowledge, lead assessors consider the likelihood of the risk over the next five-year period. Individual Risk Assessments are then provided to the London Risk Advisory Group for discussion and approval.

4. Risk evaluation

Individual Risk Assessments are confirmed and summary information collated into the London Risk Register.

5. Risk treatment

Gaps in capability against the Reasonable Worst Case Scenario is assessed periodically by the London Resilience Forum, where additional risk management options are agreed as necessary.

6. Monitoring and Review

Risk assessment is not a static process and is subject to constant review. At a minimum, each Individual Risk Assessment is formally reviewed on a 2 year cycle. An annual update of the London Risk Register is published in the spring.

Appendix 2 – Likelihood and Impact Scoring Scales

Further detail on the scoring measures is provided in Annex 4D of "Emergency Preparedness" (HM Government, 2005) or Local Risk Management Guidance (available via Resilience Direct).

Score	Impact Descriptor	Likelihood Descriptor	% Likelihood over 5 years	Likelihood Over 5 Years
1	Limited	Low	> 0.005%	> 1 in 20,000 chance
2	Minor	Medium Low	> 0.05%	> 1 in 2,000 chance
3	Moderate	Medium	> 0.5%	> 1 in 200 chance
4	Significant	Medium High	> 5%	> 1 in 20 chance
5	Catastrophic	High	> 50%	> 1 in 2 chance

Impact Categories

Category	Explanation
Health	Direct health impacts (numbers of people affected, fatalities, injuries, human illness or injury, health damage).
Social	Encompassing the social consequences of an event, including availability of social welfare provision and indirect health impacts that arise because of strain on the health service; disruption of facilities for transport; damage to property; disruption of a supply of money, food, water, energy or fuel; disruption of an electronic or other system of communication; homelessness, evacuation and avoidance behaviour; and public disorder due to anger, fear, and/or lack of trust in the authorities.
Economic	An approximate net economic cost, including both direct (*eg* loss of goods, buildings, infrastructure) and indirect (*eg* loss of business, increased demand for public services) costs.
Environment	Encompassing long-term impact of contamination or pollution of land, water or air with harmful biological / chemical / radioactive matter or oil, flooding, or disruption or destruction of plant or animal life.

Appendix 3 – Risk Rating Definitions

Definitions of Nationally Approved Risk Ratings	
Very high (VH)	These are classed as primary or critical risks requiring immediate attention. They may have a high or low likelihood of occurrence, but their potential consequences are such that they must be treated as a high priority. This may mean that strategies should be developed to reduce or eliminate the risks, but also that mitigation in the form of (multi-agency) planning, exercising and training for these hazards should be put in place and the risk monitored on a regular frequency. Consideration should be given to planning being specific to the risk rather than generic.
High (H)	These risks are classed as significant. They may have a high or low likelihood of occurrence, but their potential consequences are sufficiently serious to warrant appropriate consideration after those risks classed as 'very high'. Consideration should be given to the development of strategies to reduce or eliminate the risks, but also that mitigation in the form of at least (multi-agency) generic planning, exercising and training should be put in place and monitored on a regular frequency.
Medium (M)	These risks are less significant, but may cause upset and inconvenience in the short term. These risks should be monitored to ensure that they are being appropriately managed and consideration given to their being managed under generic emergency planning arrangements.
Low (L)	These risks are both unlikely to occur and not significant in their impact. They should be managed using normal or generic planning arrangements and require minimal monitoring and control unless subsequent risk assessments show a substantial change, prompting a move to another risk category.
Based on the model risk rating matrix published in Annex 4F of "Emergency Preparedness" (HM Government, 2005)	

Appendix 4 – Full Risk Matrix

Impact						
	5	H4, H9	HL16, H19, H41, X5, H44	HL18		
	4	H11, H49, H16	H50, HL12, H38	H21, H45	H23	
	3	HL21, HL25, H5, H7, HL30, HL34, HL8	HL28, H12, HL14, HL22a, HL105, HL23, H39, HL11, HL9, X6	H24, HL17, HL19, H17, H18, HL3, H56, X2, X4	H48, H46, HL4, X1, L19	H30, X3, HL42
	2	H58, HL33, H15, HL37	HL7, H40, HL9b	H25, H26, H31, H35	H14, H37, H54	HL22
	1				HL10	X7
		Low	**Medium/Low**	**Medium**	**Medium/High**	**High**
		Likelihood				

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