Cardiff ‘Area’

Risk Register

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LISTEN [CONSIDER] ACT [SAFETY]

Cardiff 'Area' Risk Register

LISTEN [CONSIDER] ACT [SAFETY]

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1.0 Introduction

1.1 Overview

The Civil Contingencies Act 2004[1] places a duty on all Category One Responders[2] to have an accurate and shared understanding of the risks that they face so that there is a sound basis for planning which is proportionate.

It also provides a rational basis for the prioritisation of objectives, and enables Category One Responders to assess their plans and capabilities, thus allowing gaps to be identified and work programmes to be developed.

The risk register contained within this document has been developed by the Cardiff 'Area' Risk Group[3] and is intended to support Category One Responders and aid multi-agency planning.

The risk process which has been followed is consistent with that which has been used by the South Wales Local Resilience Forum[4], and has been widely recognised as being good practice.

By utilising the same process, assessments from the 'Area'[5] group can be fed into the South Wales Local Resilience Forums' Risk Group to inform their work and assist in the development of future 'Local'[6] risk registers.

1 The Act of Parliament which sets the framework for civil protection at the local level.
2 A person or body listed in Part One of Schedule One to the Act. These bodies are likely to be at the core of the response to most emergencies.
3 A multi-agency group comprising of Category One Responders which has a specific interest in mitigating emergencies occurring in Cardiff.
4 The forum which brings together Category One and Two responders within the South Wales Police Area for the purpose of facilitating co-operation in the fulfilment of duties under the Act.
5 The geographical area defined by the boundaries of Cardiff Council.
6 The geographical area defined by the Boundaries of South Wales Police.

2.0 Group Membership

2.1 Overview

Cardiff 'Area' Risk Group is made up of the agencies as described. Additional representation from key partner agencies will be sought for specific hazards as and when advice is required.

2.2 Cardiff Council

Emergency Management Unit

Strategy & Enterprise

2.3 South Wales Fire & Rescue Service

Operational Risk Department

2.4 South Wales Police

Major Events & Emergency Planning ('C' Division)

2.5 Welsh Ambulance Services NHS Trust

Emergency Planning: Cardiff

2.6 Environment Agency Wales

2.7 British Transport Police

Emergency Planning: Cardiff

2.8 Cardiff & Vale NHS Trust

Corporate Management

2.9 Cardiff Local Health Board

Corporate Services

3.0 Terms of Reference

3.1 Aim

To prepare an Area Risk Register[7] in accordance with the definition of 'emergency'[8] under the remit of Civil Contingencies Act (CCA) 2004.

3.2 Objectives

I. To consider, assess and agree the potential impact of hazards in Cardiff.

II. To agree the organisations with lead responsibility for making assessments of likelihood and impact for identified hazards in Cardiff.

III. To undertake risk assessments in line with current guidance under the remit of the CCA 2004.

IV. To prepare and maintain an Area Risk Register for the partner agencies.

V. To identify gaps in resilience and report on proposed mitigation options for the identified risks to the partner agencies.

VI. To update, monitor and maintain this process as deemed necessary.

[7] An ordered list of the risks that have been identified as part of the societal risk management process for Cardiff.

[8] An event or situation which threatens serious damage to human welfare in a place in the UK or to the environment of a place in the UK, or war or terrorism which threatens serious damage to the security of the UK. To constitute an emergency this event or situation must require the implementation of special arrangements by one or more Category One Responders.

4.0 Risk Process

4.1 Process Chart

The ensuing process chart has been agreed by the Cardiff 'Area' Risk Group as the model for developing a societal risk management process for Cardiff.

The model may be reviewed periodically to ensure that it reflects the work of the 'Area' Risk Group.

Step One	**Define Scope** Identify Stakeholders Identify Terms of Reference Define the 'Area'
Step Two	**Identify Hazards & Threats** Evaluate South Wales LRF Risk Register to Identify Headline Hazards Evaluate the Local Risk Guidance to Identify Headline Hazards Identify Further Hazards Pertinent to Cardiff Identify Locations Where Each Headline Hazard May Occur Detail 'Outcome Descriptions' For Each Headline Hazard
Step Three	**Assess Hazards** Assess Likelihood Assess Impact
Step Four	**Evaluate Risks** Compile Risks Into Register Accept/Decline Risk If Declined…
Step Five	**Mitigate Risks** Rate Risk Priority Identify Mitigation Options Develop Necessary Mitigation Options
Step Six	**Monitor & Review Risks** Review Risk Register Review Risk Assessment Update Risk Register

4.0 Risk Process Cont…

4.2 Likelihood Scale

LIKELIHOOD SCORING SCALE

Level	Likelihood	Likelihood over 5 years	Likelihood over 5 years
1	Negligible	>0.005%	>1 in 20,000 chance
2	Rare	>0.05%	>1 in 2,000 chance
3	Unlikely	>0.5%	>1 in 200 chance
4	Possible	>5%	>1 in 20 chance
5	Probable	>50%	>1 in 2 chance

4.0 Risk Process Cont…

4.3 Impact Scale

EXPLANATION OF CATEGORIES OF IMPACT

Category	Explanation
Health	Encompassing direct health impacts (numbers of people affected, fatalities, injuries, human illness or injury, health damage) and indirect health impacts that arise because of strain on the health service
Social	Encompassing the social consequences of an event, including availability of social welfare provision; disruption of fatalities 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	Encompassing the net economic cost, including both direct (e.g. loss of goods, buildings, infrastructure) and indirect (e.g. loss of business, increased demand for public services) costs
Environment	Encompassing 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

NB.

Strictly, levels 1 and 2 of the impact scale are likely to fall below the threshold for an emergency. Consequently, there may be no statutory requirement to plan for events that score 1 or 2 on the impact scale. This scale recognises that, to demonstrate a thorough analysis, Category 1 responders will wish to include in their risk assessment certain risks with impacts at these levels.

4.0 Risk Process Cont…

4.3 Impact Scale Cont…

IMPACT SCORING SCALE

Level	Impact	Categories of Impact	Description of Impact
1	Insignificant	Health	• Insignificant number of injuries or impact on health
		Social	• Insignificant number of persons displaced and insignificant personal support required • Insignificant disruption to community services, including transport services and infrastructure
		Economic	• Insignificant impact on local economy
		Environment	• Insignificant impact on environment
2	Minor	Health	• Small number of people affected, no fatalities, and small number of minor injuries with first aid treatment
		Social	• Minor damage to properties • Minor displacement of a small number of people for <24 hours and minor personal support required • Minor localised disruption to community services or infrastructure <24 hours

4.0 Risk Process Cont…

4.3 Impact Scale Cont…

IMPACT SCORING SCALE

Level	Impact	Categories of Impact	Description of Impact
		Economic	• Negligible impact in local economy and cost easily absorbed
		Environment	• Minor impact on environment with no lasting effects
3	**Moderate**	**Health**	• Sufficient number of fatalities with some casualties requiring hospitalisation and medical treatment and activation of MAJAX, the automated intelligent alert notification system, procedures in one or more hospitals
		Social	• Damage that is confined to a specific location, or to a number of locations, but requires additional resources • Localised displacement of >100 people for 1-3 days • Localised disruption to infrastructure and community services
		Economic	• Limited impact on local economy with some short-term loss of production, with possible additional clean-up costs
		Environment	• Limited impact on environment with short-term or long-term effects
4	**Significant**	**Health**	• Significant number of people in affected area impacted with multiple fatalities, multiple serious or extensive injuries, significant hospitalisation and activation of

4.0 Risk Process Cont…

4.3 Impact Scale Cont…

IMPACT SCORING SCALE

Level	Impact	Categories of Impact	Description of Impact
			MAJAX procedures across a number of hospitals
		Social	• Significant damage that requires support for local responders with external resources • 100 to 500 people in danger and displaced for longer than 1 week. Local responders require external resources to deliver personal support • Significant impact on and possible breakdown of delivery of some local community services
		Economic	• Significant impact on local economy with medium-term loss of production • Significant extra clean-up and recovery costs
		Environment	• Significant impact on environment with medium/long-term effects
5	**Catastrophic**	**Health**	• Very large numbers of people in affected area(s) impacted with significant numbers of fatalities, large number of people requiring hospitalisation with serious injuries with longer-term effects
		Social	• Extensive damage to properties and built environment in affected area requiring

4.0 Risk Process Cont…

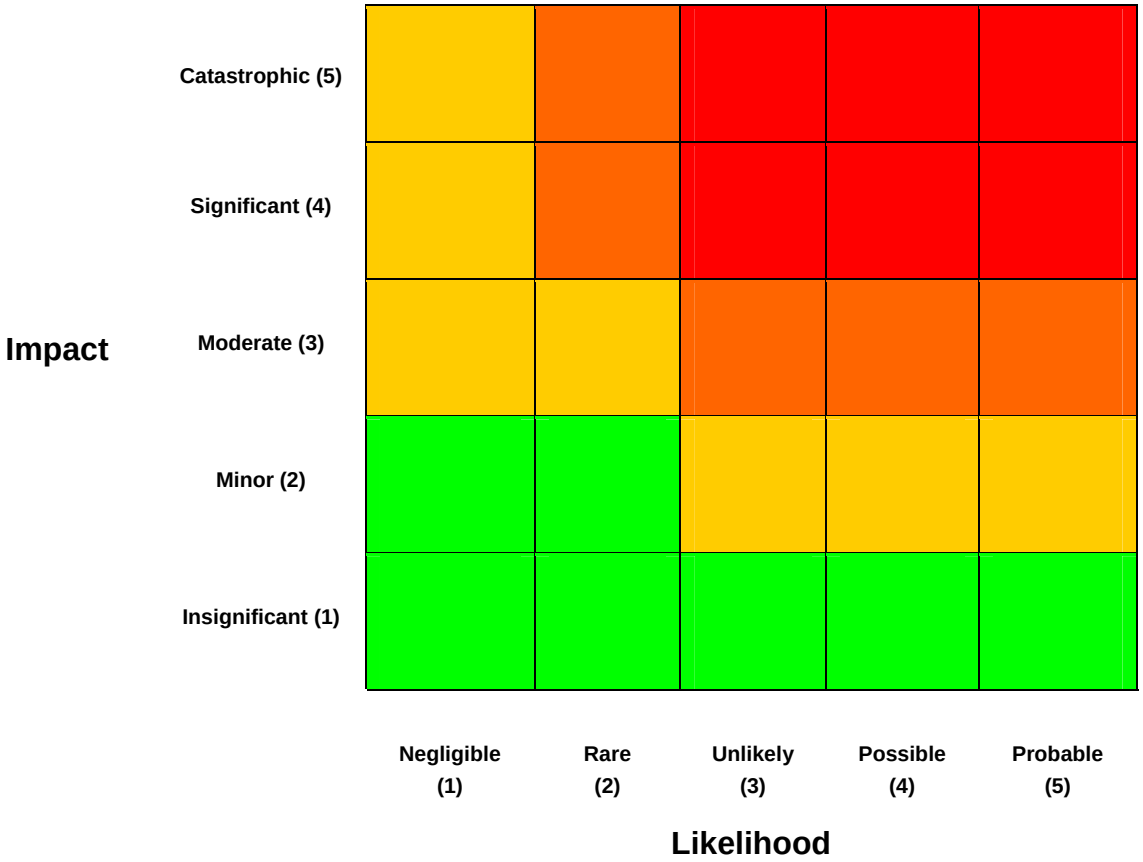
4.3 Impact Scale Cont…

IMPACT SCORING SCALE

Level	Impact	Categories of Impact	Description of Impact
			major demolition • General and widespread displacement of more than 500 people for prolonged duration and extensive personal support required • Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support
		Economic	• Serious impact on local and regional economy with some long-term, potentially permanent, loss of production with some structural change • Extensive clean-up and recovery costs
		Environment	• Serious long-term impact on environment and/or permanent damage

4.0 Risk Process Cont…

4.4 Risk Rating Matrix.



4.0 Risk Process Cont…

4.4 Risk Rating Matrix Cont…

DEFINITION OF RISK RATINGS

Very High Risk	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 Risk	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 Risk	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 risk	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 matrix published in Annex 4F of " Emergency Preparedness" (HM Government, 2005)

5.0 Contextualisation

5.1 Description of Cardiff

Situated in the south-eastern corner of Wales between Newport and the Vale of Glamorgan, Cardiff is bounded by the Severn Estuary on one side, and the M4/South Wales Valleys on the other. It covers an area which is approximately 13,900 hectares, and has a resident population of 321,000.

(Municipal Year Book 2004 Edition: Hemming 2003)

As Wales` Capital City, Cardiff is the seat of Government and the commercial, financial and administrative centre of Wales. It is a city of contrasts where innovative architecture sits alongside historic buildings.

The bustle of the city centre is only a few strides from acres of peaceful parklands, and the welsh culture of dragons and myth blends perfectly with a modern, technology driven city.

Cardiff's pedestrianised shopping centres and malls contain popular high street and designer stores and the Victorian and Edwardian arcades that criss-cross the city centre are home to dozens of independent and boutique shops where you can find unique gifts, clothes and food, many with a Welsh flavour.

A few minutes from the city centre are the revitalised docklands of Cardiff Bay, bordered by dozens of restaurants and cafes. Dominating the skyline in the Bay is the Wales Millennium Centre, home to seven arts organisations including the world-renowned Welsh National opera.

(Visit Cardiff Magazine: 2006)

5.2 Social Factors

About two thirds of the population of Wales live in the southern industrialised part of the country, with Cardiff, Swansea and Newport being the largest urban areas. The remaining third live in the mainly rural north and west.

5.0 Contextualisation Cont…

5.2 Social Factors Cont…

With the median age of the population in Wales being 38 years, Cardiff is above UK average with approximately 9.2% of its population being aged 20 to 24 years. Three in five people are of working age, while one in five is over working age and one in five under 16 years.

The post-war trend of ageing among the overall population is particularly evident among the very elderly in Wales. The number of people aged 85 or over has grown five-fold over the last half century, but Cardiff records the lowest proportion of people of pensionable age at just 17%.

Household Composition

Of the recorded 1.2 million households in Wales, 29% are one person households, 28% are households comprising of a family with dependent children. Religious and ethnic minorities in Wales form a small proportion of the population, although Cardiff is considerably more diverse.

Ethnicity

Most of the population of Wales describe their ethnicity as White. People from ethnic backgrounds other than White make up 8% of the population of Cardiff. Around half of all Black and Asian groups and a third of all Mixed and Chinese groups live in the Capital.

Religion

Nearly three quarters of the Welsh population describe their religion as Christian. After Christianity, Islam is the next most common faith, and Cardiff has the largest Muslim community accounting for 4% of the population.

5.0 Contextualisation Cont…

5.2 Social Factors Cont…

Among other faiths the next largest groups are Indian Hindus, White Buddhists, White Jews and Indian Sikhs.

Across Wales 19% report that they have no religion.

(National Statistics: Census 2001

5.3 Environmental Factors

Cardiff's coastline is approximately 10 kilometres in length and predominantly comprises of mudflats.

Cardiff Barrage separates the estuary from the freshwater Bay Area and assists the more traditional defences seen along the coastline in the protection of Cardiff from coastal flooding. In addition, the Barrage also helps to control river flow and prevent flooding from the rivers Taff and Ely.

Cardiff has approximately 30 livestock & hillside farms with a commercial interest in its outlying areas, and predominantly to the north of the County.

There are no registered poultry farms in the county (farms with over 50 birds).

(Cardiff Council; Trading Standards: 2006)

5.4 Infrastructure Factors

Business

Cardiff is the principal finance and business services centre in Wales and, in 2004, employment in this sector stood at around 35,000 (18.4% of the city's workforce). In 2004, around 18,200 workers were also employed in leisure and tourism industries in Cardiff, with the sector accounting for around 9.5% of total employment in the city.

5.0 Contextualisation Cont…

5.4 Infrastructure Factors Cont…

Within the bioscience sector, Cardiff currently accounts for around one-third of all pharmaceuticals jobs in Wales. Likewise, the city accounts for around one-third of all Welsh jobs in the creative industries sector.

Major employers in the Welsh Capital include Cardiff Council, NHS Wales, Cardiff University and the National Assembly for Wales. Companies such as Legal & General, Barclays, Admiral Insurance, HBOS, Zurich, ING Direct, The AA, Principality Building Society, 118118, British Gas, SWALEC Energy and BT all have large contact centre operations in the city.

Economy

In 2005, the total Gross Value Added (GVA) generated in Cardiff & the Vale of Glamorgan was £8,978 million (22% of Welsh GVA). GVA per head in Cardiff & the Vale of Glamorgan also stood at £20,577, which was 15% above the UK average, having risen from a differential of just 4% in 1995.

Transport

Cardiff is a major transport hub in Wales and is the focus for many arterial road and rail routes that connect the city to the rest of South and West Wales and England.

The M4 motorway is the principal motorway in the region that connects Cardiff with towns in West Wales such as Llanelli, Swansea and Camarthen, and also England, principally, Bristol and London.

The A48(M) motorway is another motorway within the city, acting as a short spur off the M4 to the city centre. The A470 is another major road within the city that provides an important link with the Heads of the Valleys.

5.0 Contextualisation Cont…

5.4 Infrastructure Factors Cont…

Cardiff enjoys a comprehensive bus network, with council-owned Cardiff Bus providing the vast majority of routes in the city and out as far as Newport, Penarth, Barry and Llantwit Major.

National Express provides direct services to most cities in the UK, including high frequency services to nearby Swansea and Merthyr Tydfil.

Arriva Trains Wales operates train services in Wales. Train transport is well developed in Cardiff and there are 20 train stations in the county. Cardiff Central is the largest railway station in Wales and one of the busiest in the country which provides an interchange for many local services.

Cardiff Queen Street railway station is the second busiest in Wales and is the hub for routes via the Valley Lines services that connect the South Wales Valleys and the Cardiff suburbs with the city centre.

Together, Cardiff Central and Cardiff Queen Street stations serve over 11 million passengers every year.

Cardiff also benefits from having a centralised and integrated transport system. The central bus and train stations are sited together in the centre of the city, allowing passengers to easily utilise both methods of transport in journeys.

Although in the Vale of Glamorgan, Cardiff and South & West Wales are served by Cardiff International Airport, the only large airport in the whole of Wales.

It is served by scheduled and charter airlines as well as low-cost carriers providing international and domestic flights. There are regular bus and train services linking the airport with the central bus and train stations.

5.0 Contextualisation Cont…

5.5 Hazardous Sites

Cardiff has a rich industrial heritage, thanks to the world-wide demand for South Wales coal. Cardiff's port, also known as Tiger Bay, became one of the busiest ports in the world and - for some time - the world's most important coal port. Indeed, Cardiff's Coal Exchange was reputedly the first host to a business deal for a million pounds sterling.

(Wikipedia: 2006)

Today the Port of Cardiff boasts excellent road links, with the M4 motorway within a few minutes' drive of the port. The comprehensive provision of rail facilities allows containers, steel, dry and liquid bulks to be distributed directly from a number of berths.

It handles a diverse range of cargoes including containers, various dry and liquid bulks, including, minerals, petroleum products, forest products and steel

It has dedicated terminal facilities, backed up by appropriate quay-transfer equipment and large areas of open and covered storage.

The port also offers stevedoring services, a major new distribution terminal with drive-in racking and over 8,000 pallet spaces and market-leading chill and cold store facilities.

Associated British Ports holds extensive areas of land for the development of port and non-port related operations.

(Associated British Ports: 2006)

The Health and Safety Executive are responsible for notifying partner agencies (including Cardiff Council) when organisations operating in Cardiff require site specific emergency arrangements under legislation including COMAH (Control of Major Accident Hazard Regulations) and REPPIR (Radiation Emergency Preparedness Public Information Regulations) etc.

5.0 Contextualisation Cont…

5.5 Hazardous Sites Cont…

Currently, Cardiff Council holds specific plans for one site in the County under the COMAH regulations; but there no sites registered requiring planning to be undertaken under the REPPIR regulations.

Furthermore, there are industrial parks in Cardiff and its outlying areas accommodating a range of diverse manufacturing, processing and storage facilities; and as such there are numerous sites around Cardiff that may be considered as hazardous.

6.0 Risk Register

6.1 Understanding the Register

The Cardiff 'Area' Risk Register has been designed specifically to support Category One Responders and aid multi-agency planning.

The information contained is also of benefit to organisations developing emergency response plans and business continuity arrangements, prompting consideration for a range of scenarios which might otherwise be overlooked.

The register is constructed as follows:-

Risk Reference

Each risk has been assigned an individual number, which correlates with the assessment undertaken and links to the South Wales Local Resilience Forums Risk Register.

Hazard

This describes the type of risk being considered.

Outcome Description

The outcome description outlines the extent of impact considered during the rating of the risk.

Likelihood

The chance of the risk occurring in Cardiff over the next five years.

Impact

The rating which shows how the risk will affect Cardiff and/or those that might be caught up in the disruption.

Risk Rating

This is the overall rating which combines the likelihood and impact.

6.0 Risk Register

6.2 Register

Date Compiled: December 2008

Revision Date: January 2010

RISK REF	HAZARD	OUTCOME DESCRIPTION	LIKELIHOOD	IMPACT	RISK RATING
1	**Fire or explosion at a fuel distribution site and tank storage of flammable or toxic liquid**	Up to 1km around site causing up to 150 fatalities or casualties. Explosions would cause primarily crush / cuts & bruises type injuries, as well as burns – fires would cause predominantly burn-type injuries.	2	3	Medium
2	**Fire or explosion at a gas storage depot**	Up to 500 metres around site causing up to 5 fatalities and up to 15 casualties. Event at storage site could last for one or two days if heat domino effect takes place on cylinders	2	3	Medium
3	**Explosion at a natural gas pipeline**	Local to site causing up to 20 fatalities and or casualties. Explosions would cause primarily crush / cuts & bruises type injuries, as well as burns – fires would cause predominantly burn-type injuries	2	2	Low
4	**Toxic chemical release**	Up to 250m from site of toxic chemical release causing up to 20 fatalities and or casualties	2	3	Medium
7	**Major contamination incident with widespread implications for the food chain, arising from:** ▪ Industrial accident (chemical, microbiological, nuclear) affecting food production areas e.g. Chernobyl, Sea Empress oil spill, Foot and Mouth Disease. ▪ Contamination of animal feed e.g. dioxins, BSE. ▪ Incidents arising from production processes, e.g. adulteration of chilli powder with Sudan I dye.	Food production / marketing implications depending on scale and area affected e.g. major. Potential direct animal and consumer health effects including possible fatalities and casualties. Consumer confidence affected leading to lost markets or panic buying	3/4	2	Medium

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RISK REF	HAZARD	OUTCOME DESCRIPTION	LIKELIHOOD	IMPACT	RISK RATING
8	**Maritime Pollution**	Spillage of up to 1000 tonnes of hydrocarbons into the sea, polluting up to 10km of coastline. Potentially significant damage to amenity value (i.e. tourism), agriculture / commerce and aquatic ecosystem.	1/2	4	Medium/High
9	**Major pollution of inland waterways**	Pollution incident impacting upon inland waterways, (e.g. 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 point(s), major impact on amenity (i.e. tourism) value, serious impact on human health.	5	4	Very High
10	**Major land contamination incident**	Pollution incident (e.g. chemical spillage) leading to persistent and/or extensive effect on land quality, major damage to terrestrial ecosystems, property, amenity (i.e. tourism) value and major damage to agriculture/commerce, serious impact on human health.	5	4	Very High
12	**Industrial explosions and major fires**	Up to 500m around site causing up to 10 serious injuries and up to 100 casualties. Explosions would cause primarily crush / cuts & bruises type injuries, as well as burns – fires would cause predominantly burn-type injuries.	5	1	Low
13	**Rapid accident sinking of a vessel in, or close to Cardiff**	Up to 50 fatalities and or casualties	1/2	5	High
14	**Rapid accident sinking of a passenger vessel on inland waterways**	Up to 50 fatalities and or casualties	2	3	Medium

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RISK REF	HAZARD	OUTCOME DESCRIPTION	LIKELIHOOD	IMPACT	RISK RATING
15	**Aviation accident over Cardiff**	Causing up to 400 fatalities and or casualties. This represents a worst case scenario involving either two aircraft and an urban environment or one of the new super jumbo jets that will become operational in 2 years time. Injuries will range from serious burns to fractures and will have long term medical requirements. There is also likely to be loss of amenities including housing or retail or industrial facilities and subsequent impact on the economy.	1	4	Medium
17	**Local accident on motorway s and major trunk roads**	Collision leading to closure of a major trunk road or motorway leading too or from Cardiff for a minimum of 4 hours. Causing more than 10 casualties or fatalities	3	2	Medium
18	**Railway Accident**	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.	1	3	Medium
19	**Local accident involving transport of hazardous chemicals**	Up to 5 fatalities an up to 50 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, quality, nature and location of accident. The assumption is based on phosgene / chlorine.	4	2	Medium
20	**Maritime accident or deliberate blockage resulting in blockage of access to Cardiff Port, maritime for more than one week**	Fatalities / injuries minor. Loss of port is likely to have an initial wider impact, but will quickly reduce as shippers seek alternative ports or methods of shipping. Economic impact on local dependent businesses	2	4	High
21	**Local accident involving transport of fuel/explosives**	Up to 10 fatalities and up to 20 casualties within vicinity of accident/explosion. Area would require evacuating up to 400m radius depending on substances involved. Potential release of up to 20 tonnes of liquid fuel into local environment, watercourses etc. Large quantities of fire fighting media (foam) would impact on environment. Roads and access routes impassable for a time. Emergency access into/out of large populated areas difficult or impossible.	4	2	Medium

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RISK REF	HAZARD	OUTCOME DESCRIPTION	LIKELIHOOD	IMPACT	RISK RATING
24	**Major local coastal/tidal flooding**	Sea surge, spring tides, gale force winds, heavy rainfall affecting Cardiff, with some defences overtopped or failing at multiple locations. Flooding of up to 4,000 properties. Multi-agency response invoked, possible large scale evacuation required. Suddenness of failure of defences would not be possible to predict, tidal inundation would locally be rapid and wave impact would cause structural damage to properties. Impact on infrastructure includes disruption of traffic for 1-3days, impact on access to agricultural land and impact to infrastructure Likely to cause economic disruption and damage.	2	4	High
26	**Major local fluvial flooding**	A sustained period of heavy rainfall extending over two weeks, perhaps combined with snow melt, resulting in steadily rising river levels over a region. Localised flooding up to 8,000 properties. There would be major impact on minor roads and some A roads and truck roads impassable for a time. Some main rail lines would be closed (where bridges are deemed unsafe for example). Some minor rail lines and stations would be closed. Most water ways would be closed to traffic because of strong currents and high water levels.	3	4	Very High
27	**Major local fluvial flooding**	A sustained period of heavy rainfall extending over two weeks, resulting in steadily rising river levels. Localised flooding of more than 100 and less than 1,000 properties. Also causing disruption to road and rail links.	3	3	High
28	**Localised Fluvial flooding (flash flooding)**	Heavy localised rainfall leading to flash flooding. Likely that no flood defences in place. Possibly no flood warning service available/suddenness of event means timely flood warnings not possible. Flooding of up to 200 properties.	3	3	High
29	**Storms and Gales**	Storm force winds affecting Cardiff for at least 6 hours. Most areas experience mean speeds in excess of 55 mph with gusts in excess of 85 mph.	3	3	High
30	**Low temperatures and Heavy Snow**	Snow lying over most of Cardiff for at least one week. Most areas experiencing extensive disruption as a result.	2	2	Low

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RISK REF	HAZARD	OUTCOME DESCRIPTION	LIKELIHOOD	IMPACT	RISK RATING
31	**Heat Wave**	Daily maximum temperature above 32°C and minimum temperatures above 15°C over most of the area for at least 5 consecutive days.	3	3	High
34	**Building Collapse**	Potential for greater than 10 persons to be trapped or missing. Localised loss of power and other essential services. Local access routes affected due to road closures. Greater than 5 fatalities depending on the size and construction of building, and occupation rates.	3	3	Medium
35	**Bridge Collapse, Structural Defect or Accident**	Roads, access routes and transport infrastructure impassable for considerable length of time. Severe congestion over Cardiff. Emergency access into/out of large populated areas severely restricted. Potential for a number of persons to be trapped or missing.	2	2	Low
36	**Major reservoir dam failure caused by internal erosion or overtopping**	Complete destruction or serious damage to up to 200 downstream properties. Several thousand other properties could be flooded. Extent of downstream effect could reach 50-60km depending on topography. Up to 2000 fatalities could result though this would be mitigated by the extent of warning time given and evacuation taking place effectively	?	5	Minimum of a Medium
37	**Influenza type disease (epidemic)**	A serious epidemic of much greater severity than the usual seasonal flu. Weekly GP consultations for new episodes of flu-like illness likely to exceed 400 per 100,000 of population at the peak (compared with a peak of around 200 per 100,000 population per week in an average year)	4	3	High
38	**Influenza type disease (pandemic)**	Pandemic likely to occur in two waves, about 3-9 months apart. Each wave likely to last 12 weeks. A quarter of the population could be affected. High number of cases and consultations (greater than 500 GP consultations per 100,000 population per week at peak) overwhelming health and other services. Clinical attack rate of 25% with mortality assumption of 1-3% of those infected. Age range vulnerability – all ages, including children, likely to be affected.	5	4	Very High

Cardiff 'Area' Risk Register

LISTEN [CONSIDER] ACT [SAFETY]

RISK REF	HAZARD	OUTCOME DESCRIPTION	LIKELIHOOD	IMPACT	RISK RATING
39	**Severe Acute Respiratory Syndrome (SARS)**	Based on US figures, outbreak will cause between 250-2000 casualties.	2	3	Medium
40	**Legionella / Meningitis outbreak**	Localised outbreak of a disease which could cause up to 10 fatalities and up to 50 casualties, with no variation in likelihood between localities.	2	3	Medium
41	**Non-zoonotic notifiable animal disease (e.g. Foot and Mouth Disease (FMD), Classical Swine Fever, Blue Tongue and Newcastle disease of birds).**	Slaughter of up to 10,000 affected and exposed livestock etc. Plus significant number of equine animals.	2	2	Low
42	**Zoonotic* notifiable animal diseases (e.g. Highly Pathogenic Avian Influenza (HPAI), rabies and West Nile Virus)**	Culling of wild birds with migratory birds introducing incidents of reinvention. Possible euthanasing of many thousands of companion animals.	2	2	Low
43	**Large Scale Public Protest**	Large Scale Public Protest. 100 highly motivated protestors, including a hard core of 20 protestors, causing physical damage, requiring a co-ordinated police response.	3	2	Medium
44	**Targeted disruptive protest, e.g. Fuel Protest**	Nationally co-ordinated protest that could generate shortages of essential supplies, and lasts for up to 1 week.	4	2	Medium
45	**Loss Of Piped Water Supply**	Denial of mains water supply across Cardiff affecting up to 50,000 people for up to 3 days.	4	3	High

* Zoonotic – A disease of animals, such as rabies or psittacosis, that can be transmitted to humans

Cardiff 'Area' Risk Register

LISTEN [CONSIDER] ACT [SAFETY]

RISK REF	HAZARD	OUTCOME DESCRIPTION	LIKELIHOOD	IMPACT	RISK RATING
47	**Technical failure of electricity network**	Total shutdown of electricity supply over whole of Cardiff, occurring during working hours and lasting for 24 hours.	2	3	Medium
52	**Flammable/ explosive liquids into drainage systems**	50-100 litres of flammable material entering sewers or drains with potential for fire, explosion / environmental damage.	2	1	Low
54	**Unexploded bombs**	Discovery of unexploded ordnance in Cardiff requiring specialist attendance & handling. Evacuation of 100 or more local residents & businesses for duration of disruption	3	2	Medium
55	**Crowd related incident**	Crowd related incident affecting over 250 people in Cardiff, resulting in mass disorder or panic (likely to result in death and/or serious injury).	4	2	Medium
56	**Telecom Infrastructure**	Widespread loss of telecommunications (including public land line and mobile networks) for up to 5 hours.			
57	**Incident In Butetown Link Tunnels**	Incident occurring within the tunnel bores (fire, crash, spillage etc) leading to the closure (partial/full) of the tunnels. Traffic disruption around Cardiff for up to five hours.	4	2	Medium
58	**Incident At Cardiff Heliport**	Incident involving a helicopter/s (fire, crash etc) at Cardiff Heliport causing damage to infrastructure (terminal building & apron), people and the environment.	2	3	Medium
59	**Incident on Flat Holm Island**	Incident occurring on Flat Holm Island (Fire, explosion, medical emergencies) requiring an emergency response to save life or mitigate impact.	2	2	Low
60	**Mass Evacuation in Cardiff City Centre**	An escalating major incident requiring either a partial or full evacuation of Cardiff City Centre. Evacuation of over 20 premises for more than 2 hours, and movement of people to another location.	4	3	High
61	**Mass Evacuation in Cardiff Bay**	An escalating major incident requiring either a partial or full evacuation of Cardiff Bay. Evacuation of over 20 premises for more than 2 hours, and movement of people to another location.	2	3	Medium

6.0 Risk Register

6.3 Further Information

For further information relating to any of the detail contained within this document, contact us at:-

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7.0 Reference Material

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