

AVON AND SOMERSET LOCAL RESILIENCE FORUM INDIVIDUAL RISK ASSESSMENT (V2.0)

Avon and Somerset Local Resilience Forum Risk Assessment Working Group

Individual Risk Assessment Lead Agency:

Avon Fire & Rescue Service

Hazard / threat category:	Sub-category:
Transport accidents	Local (road) accident involving transport of fuel / explosives
Hazard and threat description, including scale:	Risk reference no.:
<p>Transport accident involving fuel / explosives:</p> <p>a) HL14 – up to 30 fatalities and up to 20 casualties within vicinity of accident / explosion. Area would require evacuating up to a 1km radius depending on substances involved. Potential release of up to 30 tonnes of liquid fuel into local environment, watercourses, etc. Large quantities of firefighting 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;</p> <p>b) L18 – incident spread beyond a 500m cordon with more than 5 fatalities and/or 20 hospitalisations, evacuation beyond the cordon; or</p> <p>c) L19 – incident contained within a 500m cordon, up to 5 fatalities and/or 20 hospitalisations, advice to shelter but no evacuation beyond the cordon.</p>	TA/9
Date of revision:	Next review date:
January 2008	January 2009

1. Overview of hazard or threat

Fuels and explosives are continually transported by road, rail, air and water throughout the United Kingdom. Many hazardous materials loads are transported by road in tankers and other containers and the Avon and Somerset area has approximately 232 miles of motorway carriageway and many more miles of major trunk roads along which such loads frequently travel. Hazardous materials are also transported through the area by rail.

Accidents involving such loads may cause fire, explosion, adverse acute/chronic health effects, a threat to public health and environmental damage. Depending on the location of the incident, an incident may also require members of the public to be evacuated or advised to shelter indoors with doors and windows closed.

2. Key historical evidence

Summit Tunnel, nr. Todmorden, 20 December 1984

A freight train conveying thirteen loaded tank wagons containing 835 tonnes of petroleum spirit derailed in the Summit Tunnel and subsequently caught fire. The incident resulted in the declaration of a major incident and subsequently necessitated the evacuation of 170 local residents, with the situation not being brought under full control until the evening of 24 December 1984. The damage to the line and structural stability of the tunnel meant that the last vehicle was not removed from the tunnel until 1 March 1985 and the line was not re-opened to traffic until 19 August 1985. There were no casualties or fatalities.

Reference: Department of Transport (1986) *Railway Accident – Report on the derailment and fire that occurred on 20th December 1984 at Summit Tunnel in the London Midland Region of British Railways*. pp 1-30. London: HMSO.

Road Petrol Tanker, Junction 18 M4, 11 June 2002

A road tanker carrying 3,000 litres of petroleum spirit caught fire on the eastbound slip road at Junction 18 (A46 Bath) of the M4 motorway. It was completely destroyed by fire and melted the road surface below, requiring the extensive resurfacing before the road could be re-opened to normal traffic. Firefighting operations took more than four hours and involved a significant foam attack using 1,000 litres of foam compound (most of which subsequently entered the drainage systems).

3. Likelihood

Hazard	Outcome description	Likelihood
Transport accident involving fuel / explosives	Up to 30 fatalities and up to 20 casualties within vicinity of accident / explosion. Area would require evacuating up to a 1km radius depending on substances involved. Potential release of up to 30 tonnes of liquid fuel into local environment, watercourses, etc. Large quantities of firefighting 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.	Negligible (1) (National assessment – Fire and Rescue Service)
Transport accident involving fuel / explosives	Incident spread beyond a 500m cordon with more than 5 fatalities and/or 20 hospitalisations, evacuation beyond the cordon.	Unlikely (3)
Transport accident involving fuel / explosives	Incident contained within a 500m cordon, up to 5 fatalities and/or 20 hospitalisations, advice to shelter but no evacuation beyond the cordon.	Possible (4)

4. Impact

Summary

NOT PROTECTIVELY MARKED

Hazard	Outcome description	Impact	
Transport accident involving fuel / explosives	Up to 30 fatalities and up to 20 casualties within vicinity of accident / explosion. Area would require evacuating up to a 1km radius depending on substances involved. Potential release of up to 30 tonnes of liquid fuel into local environment, watercourses, etc. Large quantities of firefighting 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.	Health:	Moderate (3)
		Social:	Significant (4)
		Economic:	Significant (4)
		Environment:	Significant (4)
		Overall:	Significant (4)
Transport accident involving fuel / explosives	Incident spread beyond a 500m cordon with more than 5 fatalities and/or 20 hospitalisations, evacuation beyond the cordon.	Health:	Moderate (3)
		Social:	Moderate (3)
		Economic:	Moderate (3)
		Environment:	Moderate (3)
		Overall:	Moderate (3)
Transport accident involving fuel / explosives	Incident contained within a 500m cordon, up to 5 fatalities and/or 20 hospitalisations, advice to shelter but no evacuation beyond the cordon.	Health:	Moderate (3)
		Social:	Minor (2)
		Economic:	Minor (2)
		Environment:	Minor (2)
		Overall:	Minor (2)

Details

Impacts associated with transport accidents involving fuel / explosives:

Primary:

Physical harm and injury: trauma from the collision, burns and smoke inhalation from any subsequent fire, adverse health effects from the toxic properties of the hazardous material (varying degrees of severity, including death).
 Damage to property, including road surfaces / railway infrastructure.
 Evacuation and temporary accommodation needs.
 Environmental pollution from escaping product or any associated fire.
 Environmental pollution from firefighting operations (eg foam, firefighting water run-off).

Secondary:

Loss of economic income.
 Safety assessments, possible re-surfacing of roadways.
 Environmental remediation and clean-up.
 Temporary impact on transport infrastructure (eg road closures or restrictions on use of railways as safety precautions).
 Need for public information.
 Reduced availability of fire and rescue resources for routine emergency cover.

5. Vulnerability and resilience

Considerable potential exists for transportation incidents involving fuels and explosives within the Avon and Somerset area. Significant controls are in place to ensure statutory compliance with legislative requirements to prevent accidents happening and for responding to them effectively if they do.

6. Overall assessment

Category:	Sub-category:		
Transport accidents	Local accident involving transport of fuel / explosives		
Outcome description	Impact	Likelihood	Risk
Up to 30 fatalities and up to 20 casualties within vicinity of accident / explosion. Area would require evacuating up to a 1km radius depending on substances involved. Potential release of up to 30 tonnes of liquid fuel into local environment, watercourses, etc. Large quantities of firefighting 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.	Significant (4)	Negligible (1)	MEDIUM
Incident spread beyond a 500m cordon with more than 5 fatalities and/or 20 hospitalisations, evacuation beyond the cordon.	Moderate (3)	Unlikely (3)	HIGH
Incident contained within a 500m cordon, up to 5 fatalities and/or 20 hospitalisations, advice to shelter but no evacuation beyond the cordon.	Minor (2)	Possible (4)	MEDIUM

Controls in place:

- Compliance with: (a) the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004; (b) the Carriage of Dangerous Goods by Rail Regulations 1996; (c) Air Navigation (Dangerous Goods) Regulations 1994; (d) Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1990.
- Placarding of hazardous materials loads. All GB-registered road and rail vehicles on domestic journeys must display the relevant Emergency Action ('Hazchem') Code. All other vehicle must display the Hazard Identification Number.
- Information retrieval schemes and availability of expert advice: TREMCARDS, placarding, CHEMSAFE scheme,

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Met. Office CHEMET scheme, availability of expert advice via Fire and Rescue Hazmat Officers and local authority Scientific Services.

- Railways: availability of Total Operations Processing System (TOPS); dangerous goods trains and trains carrying passengers are not allowed in the Severn Tunnel at the same time.
- Fire and Rescue Service: bulk foam plans, Environment Agency 'grab-packs' and Environmental Protection Unit for pollution control, Environment Agency-Fire and Rescue Service Memoranda of Understanding on environmental protection, mutual aid reinforcement schemes, New Dimension mass decontamination and Hazardous Detection, Identification and Monitoring (H-DIM) capabilities.
- Ambulance Services: decontamination teams for contaminated casualties.
- Local authorities: generic emergency plans (eg evacuation and rest centre plans).
- Highways Agency: incident response plans.

Additional risk treatment required:

- None identified.

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