



Shropshire

Fire and Rescue Service

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SIP Flooding Incidents	
Fire service Manual Volume 2 "Safe Working near, on or in water"	
Guide to Operational Risk Assessment. Section 2.8	
Environment Agency Website	
www.envo.org.uk	

**Brigade Order
Operations
17**

Part 1

**Incidents
involving
flooding**

Part 1 – Incidents involving flooding

Purpose

The first part of this Brigade Order gives background information and guidance to Brigade personnel when dealing with incidents involving flooding. It highlights some of the risks and identifies the appropriate safe systems of work which should be used whenever dealing with incidents of this type.

The Order also provides further background and technical references for the Specific Incident Procedure (SIP).

Part 2 of this Order deals with the problems facing SF&RS when dealing severe with flooding in the Shrewsbury area.

Strategic aims and objectives

Strategic aim 2 - "Protect life, property and the environment from fire and other emergencies."

Strategic aim 3 - "Secure the highest level of safety and welfare for all staff and Authority members by providing effective supervision, training, equipment and systems of work."

Roles, Responsibilities and Review

The **Deputy Chief Fire Officer** is responsible for ensuring this Order is implemented across the Brigade.

The **on duty Principal Officer** will be responsible for the day to day operation of the Order.

The **Head of Operational Response and Incident Command** will review this Order biennially in **September** and as and when organisational changes take place.

Introduction

The Environment Agency will be the responsible authority for informing the Police of any flood alert and they, in turn, will inform District Councils and other agencies e.g. Fire and Ambulance Services. Flood warnings, updates, river levels etc will also be received into the Brigade from the Environment Agency via fax.

Contingency plans have been produced by District Councils, Police, the Environment Agency and the Fire and Rescue Service etc. to deal with the flooding of principally, the Rivers Severn and Teme.

It should be noted that these plans have been produced specifically for the event of river flooding which can be forecast and do not take account of localised flooding due to heavy rainfall where drains are unable to discharge surface water.

The **plans** provide for the receipt of information and for warning occupiers of premises and land at an early stage of any likely flooding in their area.

Upon notification and depending on the expected severity of floods, District Councils may set up **Emergency Centres**, normally located at District Council Offices, from where the arrangements will be co-ordinated and Flood Wardens will be advised of the situation.

Each group of Flood Wardens are able to communicate with their Emergency Centre and arrange assistance and advice for persons likely to suffer from the effects of flooding.

Standard operational procedures

At a tactical level the operational procedures to be followed and the safety considerations are dealt with in the SIP on Flooding.

In the event of severe flooding, the Mobilising Officer will inform the Executive Officer and request the attendance in Brigade Control of the Principal Officer and the Contingency Officer. Depending on information received the Principal Officer may initiate use of the Major Incident Control room situated at the rear of Control (Incident Command room). Fire Control personnel may be required to set up the Major Incident room.

Two box folders (Flooding 1 and 2) containing Standard Operating Procedures and other information for setting up the control room and dealing with floods are available to assist officers nominated to specific roles: flooding plans, maps and other information are also available.

Emergency contacts

The names and telephone numbers of key personnel in other agencies and authorities where information can be received or passed on to are located in the:

- Shropshire County Council directory of emergency contacts
- Standard operating procedures flooding folder available in the Major Incident Control room.

Flood Area Maps

The following maps are available with the Flooding folders showing area of flood plain.

Bridgnorth
Ironbridge
Molverley and Pentre
Shrewsbury Town centre

Flood warnings

The Fire and Rescue Service and the general public will receive the following flood warnings

Flood watch (flooding possible)

This is the first stage of the warning. If your area is issued with a flood watch it means there is the possibility of some flooding. You're advised to keep a close eye on local radio or television reports, alert your neighbours, watch water levels, check on your pets, reconsider any travel plans, make sure you can put your flood plan into action, and ring the flood line for further information and advice.

Flood warning (flooding is expected)

If a flood warning is issued in your area, it means flooding is expected and will cause disruption. You are advised at this stage to move pets, vehicles, food, valuables, and other items to safety, be prepared to turn off the gas and electricity, be ready to evacuate your home, and put sandbags or "floodboards" in place to protect your home.

Severe flood warning (flooding is expected)

This is the warning issued when serious flooding is expected and there is imminent danger to life and property. If your warning is upgraded to this you should be prepared for your gas, electricity, water, and telephone supplies being lost. You're advised to keep calm and reassure others and co-operate with the emergency services

All clear

There are no flood watches or warnings currently in force in the (xxx) area

Flash Floods

What are flash flooding events?

As the name implies, flash floods are sudden and often unpredictable events resulting from:

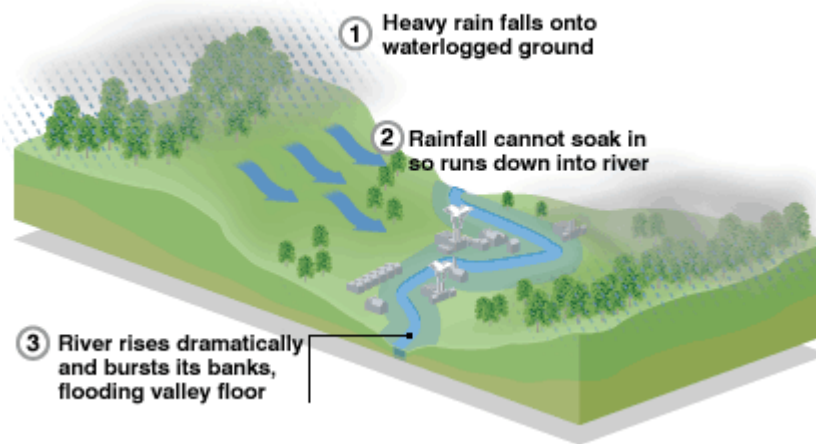
- Massive and sudden rainstorms
- A rapid snowmelt in the mountains
- Failure of natural or man-made water defences

Although these events remain relatively rare in the UK, flash floods in the UK do occur. Usually resulting from torrential rain, flash floods arise when the ground becomes saturated with water so quickly that it cannot be absorbed - leading to 'run off' or water running over the soil rather than sinking into it. This run-off can cause localised but severe flooding.

Whilst torrential rain is key to the onset of flash flooding, the drainage and topography of the surrounding area determines the scale and impact of the event. In places such as Boscastle or Lynmouth, steep-sided valleys accentuated flooding by acting as huge funnels for the run-off and channelled it very quickly down to the sea.

See image below for a pictorial representation of how flash flooding occurs:

HOW FLASH FLOODS OCCUR



Flash flooding can be intensified by:

- Development in catchments and other changes in land use (increasing the rate and volume of run-off; sediment movement that has changed river cross-sections and affected flood levels)
- Lack of maintenance of flood defence systems, watercourses, culverts (including the flood relief areas around them) and road gullies, particularly where this leads to channel blockage
- Canalisation, modification and diversion of rivers and watercourses, which increase the rate of flow and decrease the time taken for water to travel within a catchment
- Building of structures (such as embankments) which restrict flows over historical flood plains and thereby creates additional flood risks both upstream and downstream.
- **Because of their unpredictable nature the usual flood warnings issued by the Environment Agency may not have been issued**

Mobilising procedures

Mobilising to flood incidents will be carried out in accordance with Brigade Order Operations No. 2

Although the Fire and Rescue Service will render whatever assistance it can to mitigate the effects of flooding, it must be ensured that standards of fire cover are maintained and not compromised due to over-mobilising to flood incidents.

With consideration to the above, one pumping appliance will be mobilised if the flooding is affecting the electricity supply of the premises or if the occupier is a vulnerable person (elderly/Over 65, disabled or infirm) or has young children below

the age of 3 or if the risk assessment carried out by the Control Operator identifies that the caller's life is at risk from the flood.

All calls for assistance made to the Brigade will be recorded as an incident even if **'advice only'** is given via the telephone system.

Special Service Form FB 64 should be completed in every case.

Safety of personnel

Fires and other incidents which occur in premises and areas seriously affected by deep flood water will present the Incident Commander with many problems. The safety of personnel must be paramount in the Incident Commanders "Dynamic Risk Assessment"

All crew members working in or near flood water must wear life jackets; **safety lines are not to be used unless the lines utilised are "Floating Lines" and are attached to life jackets fitted with a "quick release device"**

The Water Rescue boat with specialist crew will be available at Shrewsbury. The use of four wheel drive vehicles should be considered as back up for any reported incident.

Non Fire Service boats should only be used by Fire Service personnel if the Incident Commander deems them to be suitable for the activity to be undertaken and their use should be confined to areas not affected by strong currents. For example a non Fire Service Boat may be used to ferry persons who are trapped by static or slow flowing flood water. The same boat could not be used to carry out a rescue in swift flowing or deep water.

Only personnel trained to Swift Water Rescue Technician level and wearing the appropriate Personal Protective Equipment (PPE) should enter flowing water (this is defined as water that is fast flowing and more than knee deep)

Hazards associated with flooded streets and roads.

Fire Service personnel may be called upon to enter flood water which is affecting streets and roads. If the flood water is assessed to be "Fast Flowing" and is above knee height the guidance detailed above must be followed. Even if this is not the case caution must be exercised and the Rescue Boat utilised whenever practicable. It is recognised that occasions may arise when the boat is not available and it is necessary to commit crews.

Incident Commanders must be aware of the following hazards and guidance when committing crews to flooded streets and roads:

- Manhole and drain covers may have been displaced
- There may be sudden and unexpected changes in the depth of the water
- There may be unseen trip hazards covered by the water
- Floating and sunken debris

- The floodwater is likely to be contaminated; personnel should wash themselves and any contaminated kit thoroughly .Fire kit may have to sent for cleaning
- No personnel should work alone
- Hand held radios to be issued to each crew committed to floodwater

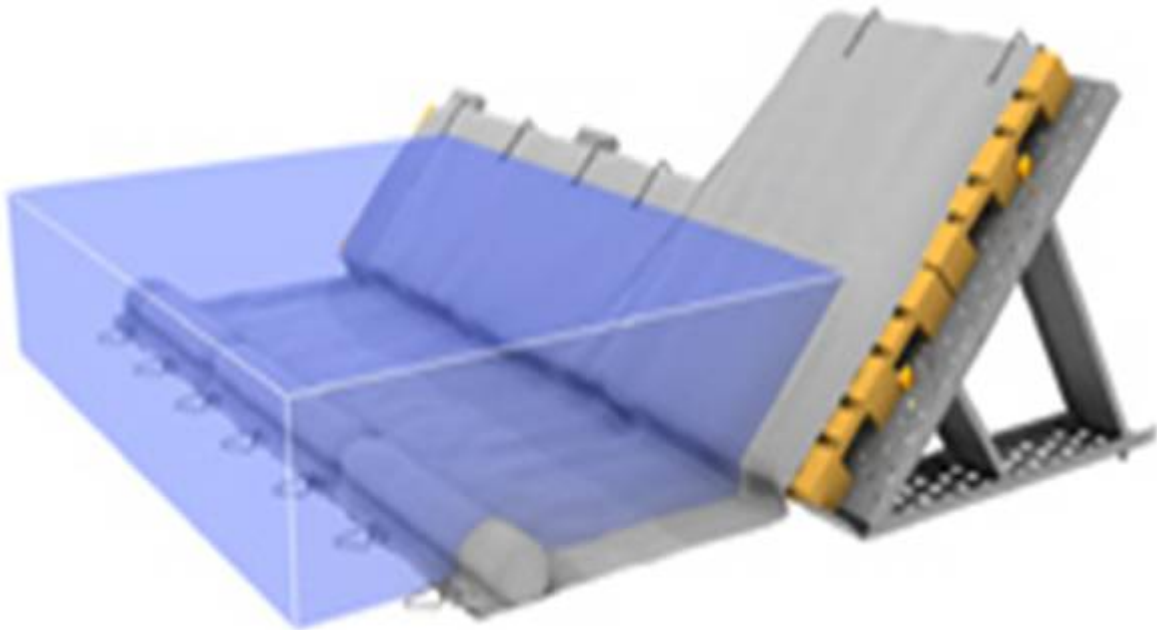
Flood defences

Following recent serious floods; the Environment Agency has provided improved flood defences in the form of demountable barriers to be placed at strategic locations. These barriers can be erected swiftly and have proved effective in holding back the rising water. Various different types of barrier are utilised, two of which are illustrated below.

Aqua Barrier: A Pallet Barrier

A simple and effective solution to a recurring problem

A simple technique is now available for protection against flood water up to 1.80 meter deep using standard pallets, a metal support and a waterproof geomembrane.





These and other types of flood barrier are being considered for use to prevent flooding along certain stretches of river. Access along the dry side of the barriers should be maintained where possible to ensure appliances are able to gain access to premises.

References

SIP Flooding Incidents

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Environment Agency Website www.envo.org.uk

Reference	Author	Status	Date	Page
OPS17PT1	J Labouchardiere	New	09/07	8