

## Reservoir Flooding

Reservoirs are artificial lakes where water is kept either to supply water for domestic or industrial use or for recreational purposes. On extremely rare occasions problems have been identified with reservoirs that have required lowering of the depth of water to enable repairs to be carried out. Multi Agency Planning, led by the local authority and including reservoir owners, is currently being undertaken to develop plans to address an emergency affecting any large raised reservoir which can hold more than 25000 cubic metres (approximately 5 million gallons) of water above ground level. It is important that we develop these plans so that people know what to do if water starts to escape from these reservoirs.



Reservoir flooding may be similar to river or surface water flooding if water escapes slowly but if there is a catastrophic failure of the dam wall then a large volume of water could escape at once. Reservoirs with a volume of greater than 25000 cubic metres are regularly inspected by a group of specialist civil engineers appointed under the Reservoirs Act 1975 and any identified safety works are immediately carried out. The Environment Agency as the regulator ensures that the inspections and any remedial works are carried out.

### How do I find out more?

Following the floods of June 2007 Sir Michael Pitt produced a report which resulted in the Floods and Water Management Act 2010 so that there is now a requirement for planning for all types of flooding including reservoir inundation. As part of this process the UK Government has ensured the production of outline inundation maps of all reservoirs with a volume greater than 25000 cubic metres. Members of the public can now see whether they are at risk of reservoir flooding by viewing the Environment Agency website and the area called 'What's In Your Backyard' (WIYBY) which will allow you to view outline reservoir flood maps in the same way that flood maps for river and coastal flooding are available. The website address:

<http://www.environment-agency.gov.uk/homeandleisure/floods/31650.aspx>.

The page is called 'Am I at risk of reservoir flooding?' and can be accessed via the 'Am I at risk of flooding?' page.

It is important to note the following:

- **There has been no loss of life from reservoir failure in the UK since the 1920s and we have robust legislation in place setting safety standards.**
- **The maps have been prepared for emergency planning purposes and for this reason they reflect a credible worst case scenario – this means that if a reservoir failure did occur it would most likely be far less severe than the scenario shown in the maps. We've mapped the credible worst case scenario so that emergency planners have all the information they might need to increase public safety.**
- Reservoirs have always posed a very small risk to nearby communities, as many communities are already aware. The level of risk has not increased.
- The areas highlighted green on the reservoir flood maps are the areas that might be flooded in a credible worst case scenario. The maps do not give any information about the depth or speed of the flood waters or the length of time it would take for the flood waters to reach any location. Even in a worst case scenario many areas highlighted green would be expected to receive no more than one or two centimetres of flood water.
- Provided reservoirs are properly maintained then the likelihood of reservoir flooding is much lower than other forms of flooding. Current reservoir regulation, which the Flood and Water Management Act 2010 further enhances, aims to ensure that all reservoirs that pose a safety risk are properly maintained and monitored in order to detect and repair any problems as early as possible.

### **Who should I call if I think I notice a problem with a reservoir?**

Call the Environment Agency Incident Helpline on 0800 807060 if you discover an apparent fault at a reservoir.

### **How will I know if there is an emergency?**

You will be alerted in one or more of the following ways:

- Emergency services in your area may knock on your door or use a loudhailer system. You may be given an evacuation card which will give you specific advice about where you should go.
- Helicopter Skyshout (public address system) warnings may be given.
- Local television and radio news alerts.

You should always follow the advice of the emergency services.

## **HOW TO PREPARE FOR RESERVOIR FLOODING**

To prepare for reservoir flooding you should:

- Know your risk. Visit the Environment Agency's website to see if you live or work in an area that might be affected by reservoir flooding;
- Plan where to go if you get caught in reservoir flooding;
- Put together a grab bag or flood kit of things you might need in an emergency;
- Know who you would need to contact and how;
- Be vigilant and be prepared to act quickly to get yourself to safety

You should also plan for the following:

### ***Loss of Mains Electricity or Gas***

Power cuts caused by reservoir flooding can affect household appliances, lighting, and other electronic equipment. Loss of electricity over a longer period can also result in loss of mains water, sewerage and mobile communications.

Schools and offices may need to close temporarily unless they can find alternative power sources, or may have to alter their hours. You may want to think about the following points to minimise disruption:

- If you have children, you may wish to discuss back-up arrangements for childcare with neighbours/friends in the event of schools being closed.
- Storing key contact details separately from your mobile phone.
- Creating an emergency pack of essential supplies.
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### ***Disruption to Telecommunications***

It is important to consider how you might cope if your landline and mobile phone were out of action, or you had no access to them. You could prepare for this happening by taking the following steps:

- Work out how your friends and family can stay in contact in the event of any disruption, perhaps by meeting at an agreed place.
- Consider developing alternative default arrangements (e.g. for meeting people or collecting children from school) which people can follow if you are unable to contact them.

### ***Access to Property***

Considering the following points may help you prepare for possible loss of access or damage to your property:

- Do you have copies of important documentation stored at another location?

- Do you know anyone who is particularly vulnerable in your local community and would you be able to help them if they were denied access to their accommodation?
- If you needed to leave the house, do you know where you would go and how you would get there? (Unless otherwise instructed, you should move away from the reservoir, keeping to higher ground, if you can do so safely).
- Do you have friends or family who could provide you with accommodation?
- What provision could you make for the family pets?
- What would you need to take with you if you had to be evacuated from your home?
- Prepare a list of useful numbers (e.g. family, the emergency services and your insurance company).
- Prepare an emergency kit – a grab bag. This could include personal documents, insurance policy, emergency contact numbers, a torch, a battery or wind-up radio, mobile phone, rubber gloves, waterproof clothing, first aid kit and blankets.
- Make a list of other items that may be vital to you in the event of an emergency. This may include family medication or items for your children (e.g. milk, baby food, sterilised bottles and spoons, favourite toys, nappies and wipes).

### **What should I do if I find myself in the path of a reservoir in an emergency?**

Although extremely unlikely, flooding from reservoirs could occur with little or no warning. You may need to react before emergency services can reach you. If you find yourself in the middle of a reservoir emergency, it is important to:

- Keep yourself and others clear of danger. Move away from the reservoir, keeping to higher ground, if you can do so safely
- Make sure 999 has been called if people are injured or if there is a threat to life
- Do not walk or drive through floodwater
- Follow the advice of the emergency services
- Try to remain calm, think before acting, and try to reassure others.
- Check for injuries – remembering to help yourself before attempting to help others.

It is important to keep roads and other access routes clear for the emergency services and for the evacuation of people who are in the area expected to flood. If you are not affected by the reservoir flooding but are close to the potential flood zone you should:

- Listen to advice from the emergency services
- Keep away from the reservoir

- Stay away from any flooded area and low ground and get away from building that may collapse
- Tune in to local radio or TV for more information

You should always follow the advice of the emergency services.

### **Where should we go if there is an emergency?**

If you become aware that your property may soon be flooded and you have not received any earlier information, you should listen out for advice on the radio and television, and take directions from local officials. If you do not hear from officials but have good reason to believe you are in the flood zone of a reservoir that has a realistic chance of failing then you should follow the advice given above

### **What should I take with me?**

You should prepare an emergency pack as detailed above.

### **Will it be safe to drive?**

If emergency services are in the area, you should seek advice from them on the best way for you to evacuate the area. In some areas community transport may be provided. It is important to keep traffic flowing so that the emergency services have access to the reservoir and to people who need their assistance.

It is important not to underestimate the danger of floodwaters:

- Do not walk through moving water. 15cm (six inches) of moving water can knock you off your feet. If you have to walk in water, walk where the water is not moving. Use a stick to check the firmness of the ground in front of you.
- Do not drive through floodwaters. It only takes 60cm (two feet) of water to lift and sweep away a 4x4 car or small lorry.
- There may be hidden dangers in the water including rubble, vegetation and exposed drains.

### **How will I know which way to go?**

You should follow instructions from the local emergency services. If there are no emergency services in the area, and if it is safe to do so, you should move away from the reservoir, keeping to higher ground. You should do this as soon as possible.

Do not approach the flood water.

## **Will it be safe to shelter inside buildings?**

No, not if you have been told to evacuate. If you are told to evacuate your property because it is in the path of the flood, you should leave your house as soon as possible. If emergency services are in the area but they have not told you to evacuate you should await further information: tune into local radio or television stations and follow the advice of emergency services or other officials in the area.

## **Who will protect my business/property from flood damage?**

It is unlikely that the emergency services will be able to protect individual properties from flooding as they will be involved in other emergency activity. You should make every effort to ensure that you are prepared to deal with an emergency of any sort by making sure your property/business is properly insured and following the advice below.

## **How can I protect my property?**

Although extremely unlikely, reservoir flooding can occur very suddenly and your priority should always be to keep yourself and your family safe. However if there is time before flooding is expected to protect your property, you should try to move valuable items upstairs. Consider permanently storing paperwork, computer files and precious photographs on high shelves or upstairs. For more detailed advice on protecting your property, check the Environment Agency website at:

[www.environment-agency.gov.uk/homeandleisure/floods/105963.aspx](http://www.environment-agency.gov.uk/homeandleisure/floods/105963.aspx).

This includes advice on changes you can make to your property to protect it from all types of flooding. If you think your property is particularly vulnerable you should think about whether there is anywhere else you could stay in the longer term if your property is damaged.

## **RECOVERY**

It is important that you do not return to your property until you are advised it is safe to do so. For your own safety you need to be sure that gas and electricity and drinking water supplies are safe and that your home is structurally sound. This may take some time.

## **Financial Issues**

Since the risk from reservoir flooding is very low, the Association of British Insurers have indicated that there should be no increase in insurance costs if you now find that your home is at risk from reservoir flooding. It is also unlikely that there will be any effects on property prices in the area.

## **More information on reservoir safety is available at:**

<http://www.environment-agency.gov.uk/reservoirsafety>