



# REPPIR

## What to do in the event of an emergency at AWE

Radiation Emergency Preparedness and Public Information Regulations

Please read this leaflet and then keep it somewhere you can find it





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the event of  
an emergency  
at AWE

## Introduction

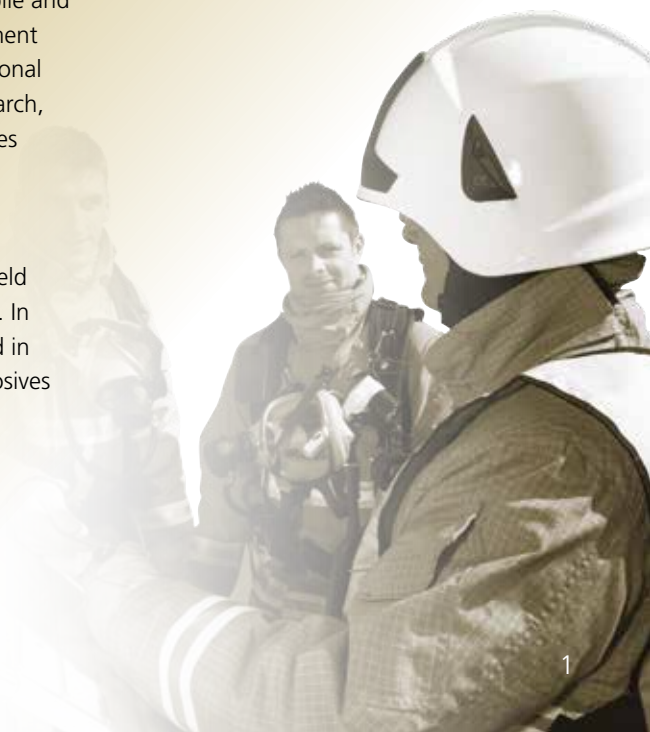
This leaflet has been produced by AWE plc in partnership with West Berkshire Council under the Radiation Emergency Preparedness and Public Information Regulations (REPPiR) 2001. It gives advice on what to do in the unlikely event of a radiation emergency (as defined within the REPPiR regulations 2001) at the Atomic Weapons Establishments (AWE) with the potential to affect the public.

## About AWE

AWE plc is the company that is licensed by the Office for Nuclear Regulation (ONR) to operate AWE sites at Aldermaston and Burghfield on behalf of the Ministry of Defence. AWE is responsible for maintaining the United Kingdom's nuclear warhead stockpile and providing expertise to UK Government agencies and departments for National Nuclear Security. This involves research, design, manufacture, and in-services support and decommissioning of warheads.

Both the Aldermaston and Burghfield sites are large industrial complexes. In addition to materials normally used in industry, we also handle high explosives and radioactive substances, under carefully controlled conditions.

AWE has rigorous emergency response procedures. We regularly exercise the emergency procedures both internally and with the emergency services and other responders including the Local Authorities.



Responding agencies have produced an AWE Off-Site Emergency Response Plan for an emergency that may affect the public. Copies are held at local libraries and on the West Berkshire Council website: [www.westberks.gov.uk](http://www.westberks.gov.uk), and links can also be found on the Hampshire County Council and Basingstoke and Deane Borough Council websites.

## Detailed Emergency Planning Zone

A Detailed Emergency Planning Zone (DEPZ) is an area around each of the AWE sites within which arrangements to protect the public by introducing countermeasures are planned in detail.

The DEPZs are three kilometres from the centre of AWE Aldermaston and one and a half kilometres from the centre of AWE Burghfield. Detailed scientific calculations have shown that people in these areas may be advised to take shelter in the unlikely event of a radiation emergency that involves an off site release of radioactive material at either site.

Businesses within the DEPZ should follow the same instructions as local residents and take shelter when advised to do so. Specific actions for businesses may vary depending upon a number of factors, for example, the type of business, the number of staff employed, the number of customers etc. It is advisable for businesses to have their own action plan in the event of an incident at one of the AWE sites. A template for this type of action plan can be found on the West Berkshire Council website: [www.westberks.gov.uk](http://www.westberks.gov.uk). Links can also be found on the Hampshire County Council and Basingstoke and Deane Borough Council websites.

## Alerts

If there was a radiation emergency that could affect the public, you may be advised to take shelter indoors until checks were made to ensure it is safe. You would be alerted either by:

- **Telephone** - The telephone alerting system would phone you with a pre-recorded message advising you what action to take. (It should be noted that this system only works with standard 'landline' telephones and not with mobile phones).
- **Via the Media** - You may hear an alert on the local radio or TV.

### Notes:






1) If you live close to the AWE sites you may overhear site alarm signals. You should never react to these because we often sound them to test them and as part of our routine emergency response exercise programme. The Site Emergency signal at both AWE sites is a descending tone, which is repeated.

2) It is also worth noting that there is a Petroleum Storage Depot located near Padworth. This site is not a part of AWE and is not connected with AWE in any way. However, due to its location, you need to be aware that this site carries out audible alarm tests on a monthly basis and care should be taken not to confuse these with any alarms at AWE Aldermaston.



## How to Respond

Following a radiation emergency your initial response should be to go indoors, unless directed otherwise by the emergency services. You should stay indoors and tune into a local radio or television station for further instructions and updates.

In a Radiation Emergency		
	<b>Go in</b>	Go indoors as soon as you can and follow the instructions below.
	<b>Stay in</b>	<p><b>Stay indoors.</b> Close and stay away from all windows and doors. Damp down or put out open fires and turn off any fans that could draw in air from the outside.</p> <p>If you have been outside for some time it would be a good idea to wash your face and hands or have a shower to wash off any material. When washing, try to avoid getting water into your nose and mouth.</p> <p>Remain calm and wait for further advice.</p> <p>We know that you will want to collect your children from school or nursery but it might not be safe to do so. Remember that all schools have emergency plans and teachers will look after the pupils in their care.</p>
	<b>Tune in</b>	<b>Tune in to a local radio station</b> , which will give further information or instructions, including updates on schools. It may also be worthwhile checking relevant websites such as local news, schools or councils, to see whether any more information is available.
	<b>Don't use the phone</b>	<p><b>Don't use the phone.</b> If you do need to use it, keep the call as short as possible. This will help to keep phone lines clear for use for emergency calls.</p> <p>Don't phone the emergency services or AWE as they will be busy dealing with the emergency. Don't dial 999 unless you have a separate emergency.</p>
	<b>Don't leave the area</b>	<p><b>Never be tempted to leave the area</b> unless told to do so by the emergency services. You will be much safer indoors. If you are out-of-doors you are more likely to be exposed to radioactivity. If you try to leave you may block the roads for the emergency services.</p> <p>There will normally be no need for urgent evacuation. In the highly unlikely event that you are told to leave the area, you will be sent to a Reception/Rest Centre set up by the Local Authority where you will be looked after and receive help and information.</p>

Local Radio Stations	
Heart Berkshire	97.0 and 102.9 MHz. FM
BBC Radio Berkshire	95.4 and 104.1 MHz FM
The Breeze (Basingstoke and North Hampshire)	107.6 MHz FM
The Breeze (Newbury)	105.6, 107.4 MHz FM
BBC Radio Solent (Hampshire)	96.1 and 103.8 MHz FM

## What is NOT possible?

- A Chernobyl type reactor disaster. There is no such reactor at either the Aldermaston or Burghfield sites.
- A nuclear bomb type explosion. The safety systems and warhead designs cannot be overridden whatever the accident or emergency.

## What is the worst that could happen?

A radiation emergency could occur following a significant seismic event resulting in a major uncontrolled fire or explosion in one of our facilities where radioactive material is being handled. In such an event radioactive particles could be carried by the wind and might affect the areas nearby.

## Radiation and Radioactivity

Radiation is energy in the form of waves or particles. Radiation of different types is a fact of everyday life – for example, light and heat from the sun are natural forms of radiation. We generate radiation using microwaves to cook, radio waves for communication, radar for navigation and x-rays for medical use.

Radiation falls into two main categories - “ionising” and “non-ionising” radiation. Microwaves for cooking, radio waves for TV and radar for navigation are examples of non-ionising radiation.

Medical x-rays, cosmic rays from the sun and substances containing radioactive materials, such as granite, are examples of sources of ionising radiation. We are exposed to ionising radiation all the time mostly from natural sources. It is all around us – in the air, the earth, the water, our food, cosmic-rays from space; even our bodies contain naturally-occurring radioactivity. As well as naturally-occurring radioactivity, other forms are generated in industry and medicine.

Ionising radiation is a form of radiation which deposits some of its energy in a certain way as it passes through matter. It can be harmful to the human body in large amounts because it can damage individual cells, which can result in damage to organs or cause long term medical effects.

Ionising radiation has the same effect whether it comes from natural sources or not. Normally people get their greatest exposure to radiation from naturally-occurring radioactive materials such as Radon gas. Radon comes from the decay of uranium that is present in rocks and soils. We breathe in Radon every day and it accounts for about 50% of our annual radiation exposure.

## Radiation Dose

The amount of radiation a person is exposed to (radiation dose) is measured in units called milli-Sieverts (mSv). The average annual radiation dose from all sources of radiation in the United Kingdom is about 2.7 mSv.

In parts of Cornwall, the annual dose from Radon Gas is 6.8 mSv. Around Aldermaston and Burghfield, where the soil is mostly chalk and clay, the total annual dose including from our operations, is lower than the national average at around 2.2 mSv a year.

About 85% of our annual radiation dose is naturally-occurring. About 16% comes from medical sources such as x-rays. The fall-out from past nuclear weapons tests around the world and incidents such as Chernobyl accounts for about 0.2% and authorised discharges from the whole nuclear industry (including AWE) totals much less than 0.1%.

A comparison of doses from different sources and their effects are shown opposite.



## Comparative scale of UK doses and limits in \*mSv and their effects.

\*mSv stands for milli-sievert. This is a unit of measurement of radiation dose.

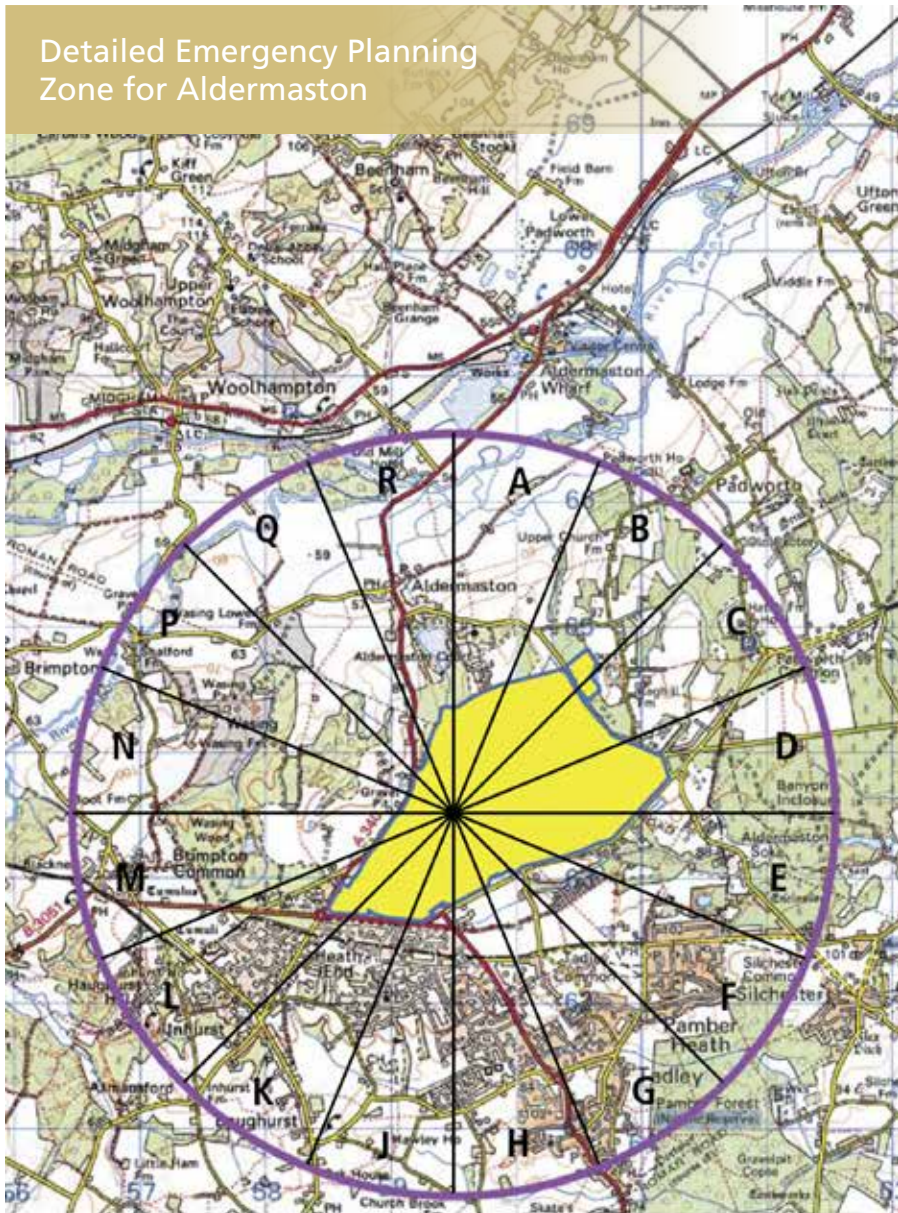
mSv	Example
0.001	Dose from eating two Brazil nuts (from the naturally occurring radioactive content)
0.004	Average annual dose from past nuclear weapons testing
0.01	Average dose from a flight from the UK to Spain
0.01	Highest annual dose to the public from AWE operations
0.02	Single chest x-ray
0.3	Maximum annual dose allowed from a single nuclear site
0.4	Average annual dose from all medical radiation
1	Average annual dose from naturally occurring Radon in homes
2	Average total annual dose from natural radiation
5	Trigger level under REPPiR for sheltering action downwind
8	Average annual dose from all sources of radiation in Cornwall
10	Action level for naturally occurring Radon in homes
20	Annual legal worker dose limit
500	Threshold for nausea and reduction in white blood cells
4000	50% survival

## Possible health risks from a radiation emergency at AWE

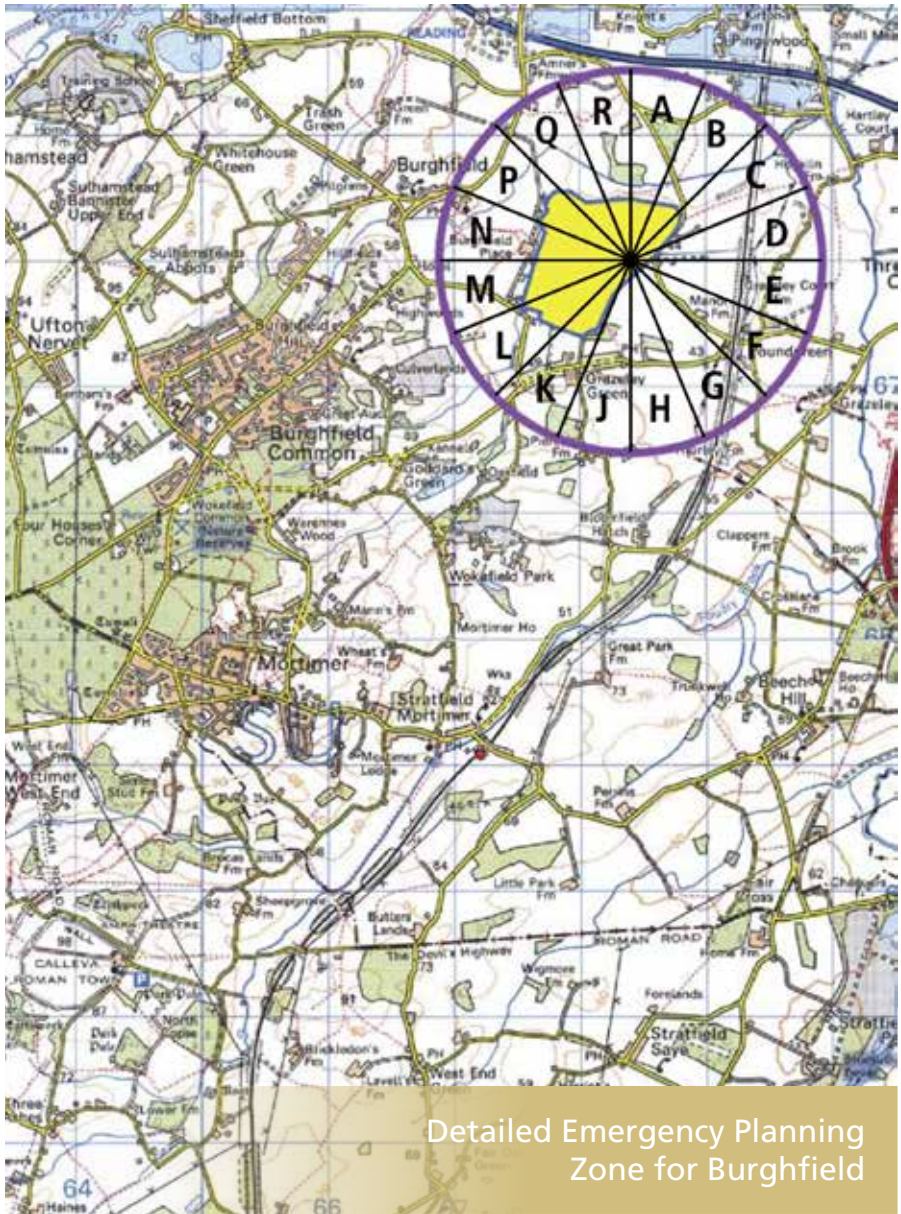
Most of the hazard from a radiation emergency involving the release of radioactive material at AWE would come from alpha radiation. Alpha radiation cannot penetrate the outer layer of the human skin, a single sheet of paper or a pane of glass, much less a wall. The hazard from alpha radiation comes from if you eat or breathe in the radioactive dust, which is why it is important to stay indoors.

There would be no immediate health effect caused by a release of radioactive material on members of the public following a serious incident at AWE.

## Detailed Emergency Planning Zone for Aldermaston



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Detailed Emergency Planning Zone for Burghfield

## Questions Answered

*Q. If a radiation emergency did happen, how would you know who is at risk?*

*A. Specialist computer modellers would use scientific calculations taking into account such things as the wind and weather. The results would be used to identify who is at risk. AWE would alert the public via the telephone alerting system and local television and radio. After the public had been alerted we would confirm the calculations by using scientific instruments to monitor the environment.*

*Q. What about the elderly and infirm in the sheltering zone?*

*A. Responding agencies, including Local Authorities and health providers, will make appropriate arrangements to provide care for the elderly, disabled and vulnerable groups in the area.*

*Q. What will happen to people coming home if their home is in the sheltering area?*

*A. Anyone returning to the sheltering area would be sent by the police to reception/rest centres where they will be looked after and given help and information.*

*Q. What about pets?*

*A. Keep all pets indoors that have not been outside at the time of the emergency; those that have been outside could be kept in a separate room or building.*

*Q. What advice will be given to farmers and growers?*

*A. Advice will be given by the Food Standards Agency on the consumption, sale and marketing of food within a defined area. The Department of Environment, Food and Rural Affairs (DEFRA) would give advice to farmers about animals that left outdoors.*

*Q. How will I know when the situation has returned to normal?*

*A. Notification of the "All-Clear" would be given by the police using local radio and TV.*

*Q. Will I have to take "anti-radiation" tablets?*

*A. No. Potassium iodate tablets are effective in emergencies involving the release of radioactive iodine from a nuclear power reactor accident. AWE does not have a nuclear power reactor and so you would not need to take such tablets.*

*Q. Will the water be safe to drink?*

*A. One of the first things the Environment Agency are required to do during the initial stages of an incident is to advise the water companies in the affected area. In most cases the answer to this question will be yes as there will often be sufficient storage of uncontaminated water, and water companies are likely to abstract from/supply from a safe supply of water if an existing supply is suspected to be contaminated.*



## Summary

*It is important that you know what to do to keep yourself and your loved-ones safe in the unlikely event of a radiation emergency at AWE.*

*Details of the arrangements are contained within the "Atomic Weapons Establishments Off-Site Emergency Response Plan" which can be found in local libraries or on the West Berkshire website [www.westberks.gov.uk](http://www.westberks.gov.uk). This information leaflet is intended as a short guide to this plan.*

*Links can also be found on the Hampshire County Council and Basingstoke and Deane Borough Council websites.*

*If you require this document in an alternative format; such as large print, on alternative paper, or electronically, please contact Corporate Communications on 0118 985 5888.*

*You can find out more about AWE by visiting our website at [www.awe.co.uk](http://www.awe.co.uk)*

*Thank you for reading this leaflet.*

*Please keep it in a safe place.*



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