

# Radiation Emergency Preparedness and Public Information Regulations

**What you should do if there is a radiation emergency  
at the AWE Aldermaston or Burghfield sites**





## Important Radiation Emergency Safety Advice.

Please read this booklet carefully and keep it in a safe place. The detachable back page is a summary of what you need to do in a radiation emergency. Tear it off and keep it on your fridge or notice board for reference.

### Within this booklet you will find information about:

- Why do I need this booklet?
- What could happen at Atomic Weapons Establishment (AWE)?
- What emergency plans are in place?
- How will I know if there is a radiation emergency?
- What is the advice and why should I follow it?
- What if I am advised to evacuate?
- How will my children at school be looked after?
- What happens about places that care for vulnerable people?
- What about farms and other places where animals are kept?
- What about food and drink?
- Radioactivity and Radiation
- Detailed Emergency Planning Zone (DEPZ) maps
- Outline Planning Zone (OPZ) maps
- Who has produced this information?
- Where can I get more information?
- Summary of sheltering actions (tear off sheet)



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## Why do I need this booklet?

You have received this booklet because your home or business is in or near the Detailed Emergency Planning Zone (DEPZ) around one of the Atomic Weapons Establishment (AWE) sites at Aldermaston or Burghfield. Both sites have radioactive material, and therefore you need to know what to do immediately if there was an accident resulting in radioactive material being released from the site.

The DEPZ is a legally required zone around nuclear licenced sites where the Council and other emergency responders need to plan in detail to be able to respond to a radiation emergency

To find out more about the DEPZ and to find out where your property is within the DEPZ, you can check online at [www.westberks.gov.uk/awe](http://www.westberks.gov.uk/awe) and check the post codes applicable which are on this booklets back page.

## What do the Atomic Weapon Establishments (AWE) do?

The AWE sites are both nuclear licensed sites which are responsible

for safely maintaining the UK's nuclear deterrent on behalf of the Ministry of Defence. It also provides expertise in national nuclear security matters to UK Government agencies and departments. To find out more about the sites then go to their website: [www.AWE.co.uk](http://www.AWE.co.uk)

## What could happen at AWE?

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

There is no risk of a Chernobyl or Fukushima nuclear reactor type incident, since there are no reactors on either site. However, should a significant accident result in an uncontrolled fire or explosion in a building where radioactive materials are being handled, there is a remote possibility that it could lead to the release of radioactive particles into the environment. If such an event were to take place, a radiation emergency may be declared.

In the unlikely event of a radiation emergency being declared, people in the area around the affected AWE



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site could be exposed to radioactive particles which have been carried downwind in a 'plume'. The exact direction and extent of any plume will depend on the weather conditions at the time. This means that the amount of ionising radiation someone may be exposed to after an accident will vary considerably, this depends on how much radioactive material is released, the weather conditions at the time including, whether they are downwind of the affected location and the strength of the wind

For emergency planning purposes, statistical analysis are made regarding wind strength but, in the unlikely event of a real incident, experts would use sophisticated computer modelling to track and forecast the plume's direction of travel and volume, as well as the extent and direction of any radioactive particles, to ensure an accurate forecast.

## What emergency plans are in place?

The Radiation Emergency Preparedness and Public Information Regulations 2019 (known as REPPPIR) require AWE to have a plan in place to respond to any radiation emergency on the site. There is also

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an 'off-site' emergency plan which is coordinated by West Berkshire District Council in accordance with REPPPIR. Both the on and offsite plans are written to dove-tail together.

AWE, the emergency services, the relevant Councils and a large number of other agencies work together in developing and reviewing the AWE Off-Site Emergency Plan, followed by training and testing of the plan in a coordinated way.

The focus of this planning is in relation to the Detailed Emergency Planning Zone (DEPZ) areas around each site, which are determined by West Berkshire District Council following the process set out in the REPPPIR 19 legislation and Approved Code of Practice.

In addition, the AWE Off-Site Emergency Plan includes an area known as the Outline Planning Zone (OPZ), which is an extended area beyond the DEPZ where additional actions may need to be considered.

The DEPZ's and OPZ's for each site are shown in the map pages of this booklet.



## How will I know if there is a radiation emergency?

Every household and business in the area will automatically receive a pre-recorded telephone message (landline only) from the AWE Alerting System.

Local radio and TV stations will broadcast messages, and emergency

responders will use news websites and social media to issue advice to the public.

Other alerting systems may also be used such as the Governments Emergency Alerts.

Please follow the advice IMMEDIATELY.

### Local radio and TV stations to tune

Heart Berkshire	97.0, (Reading) and 102.9 MHz (Basingstoke and Whitchurch) MHz. DAB: 12D (Reading and Basingstoke) <i>Broadcast area: Berkshire and north Hampshire</i>
BBC Radio Berkshire	Frequency: 94.6 MHz, 95.4 MHz, 104.1 MHz, 104.4 MHz; DAB: 12D; Freeview: 719 <i>Broadcast area: Berkshire, northern Hampshire, parts of Buckinghamshire and parts of southern Oxfordshire</i>
Greatest Hits Radio Berkshire & North Hampshire	107.6 MHz FM
The Breeze (Newbury)	105.6 and 107.4 MHz FM
BBC Radio Solent (Hampshire)	96.1 and 103.8 MHz FM
The Breeze (Reading)	107 MHz FM
BBC South	
ITV Meridian	



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## What is the advice and why should I follow it?

**You should go indoors immediately and stay there.** This is because contamination levels are likely to be higher outside buildings than inside. Staying inside is the most important advice because the fabric of the building will provide a layer of protection against any ionising radiation and will reduce exposure to any radioactive particles.

If you are not at home, go into the nearest permanent building. If you are outside and in the downwind area, as advised by the emergency services, at the time of the incident you may benefit from decontaminating yourself.

Taking off your outer layer of clothing can remove up to 90% of radioactive material. If you can, shower using mild soap and shampoo; do not use conditioner, as this may bind contamination to the hair. If you cannot, wash your hands, face, and other exposed body parts at a sink or tap.

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As a precautionary measure, all within the DEPZ area will be advised to shelter in the initial response stages of a radiation emergency. Sheltering may be necessary for up to 48hrs.

**Keep your pets inside** if they were not outside at the time of the emergency; those that have been outside should be kept in a separate room or building.

**Close all windows and doors** to stop radioactive particles from entering the building.

**Turn off air conditioning units and put out fires or woodburners.**

Fans, heating systems, gas fires and air conditioning all draw in air from outside so these should be shut down to minimise radioactive particles entering the building.

**Listen to local TV and radio** for instructions and updates. During a radiation emergency, advice will be broadcast regularly. This will include the care of children at school, food and water supplies and care of farm animals and pets.



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**Do not make phone calls by landline or mobile, or use mobile data.** This is important because the phone system could be overloaded, preventing the emergency services and other responders from receiving or making calls, or from contacting you. You can still call 999 in an emergency.

**Stay where you are.** The main risk at AWE is from Alpha radiation, which is why you will be safer to stay where you are rather than travelling around outside, vehicles provide less protection against ionising radiation than houses and other solid buildings. If you try and leave the area, roads could quickly become gridlocked and prevent access for the emergency services. You could also end up in an area with more radioactive contamination unknowingly or by accident. It is very unlikely that an evacuation would be necessary but if that does happen, details of what to do will be given.

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### **How long do I need to shelter for?**

Extensive environmental monitoring results will be used to confirm where sheltering needs to remain in place and to identify those areas where sheltering is no longer required. If sheltering is required after 48hrs then you are likely to be asked to evacuate where you are sheltering and move to somewhere else for a period of time.

**Make sure that everyone in your home or business understands what to do** in the event of a radiation emergency.

### **What if I am advised to evacuate?**

You should not evacuate unless you are told to do so. Normally the safest place for you is in a building, which may be for a number of days depending on the situation. However if you need to be evacuated urgently from the area, you will be told how this will be done and what you need to do by the emergency responders.



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## What if my children are at school during a radiation emergency?

Children at school will be kept inside to protect them from radioactive particles. Windows and doors will be closed, and air conditioning and heating systems shut down.

You should not risk exposing your children or yourself to higher levels of radiation by going to collect them. Listen to local radio and TV to find out the arrangements for returning children from their schools. Schools may also notify you directly of any returning arrangements.

If your children are walking to school when notified of an incident, you must be able to contact your child to notify them and advise them to return home, proceed to school, or enter the first safe public building to shelter, depending on which is closer.

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## What happens at hospitals, care homes or other places that provide care for vulnerable people?

All establishments with vulnerable people are identified in the off-site emergency plan and have been provided with actions they should do.

### **These actions include having:**

- a process to alert all staff and occupants to take cover and go inside a permanent building
- key-holder details
- relevant medical, drug and dietary requirements and supplies
- arrangements for contacting next of kin
- arrangements in place to look after people who are sheltering for up to 48 hours

No one should go to the sites to try to pick up or visit relatives, they will be looked after safely where they are. Any support they need will be provided through the emergency responders.



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## What about my business?

All businesses should have a robust emergency plan and business continuity plans in place. Specific actions for businesses will vary depending on the type of business, the number of staff and customers on site etc. It is critical to any plan to ensure all staff and visitors to your business take shelter in a suitable building immediately when notified of a radiation emergency and that systems are in place to look after everyone. Guidance about what to have in an emergency plan relating to AWE can be found at [www.westberks.gov.uk/awe](http://www.westberks.gov.uk/awe).

## What about farms and other places where animals are kept?

Farmers and animal business owners should not go outside to tend to animals. Instead they should await further advice via local media, animal health officers or other emergency responders. The Department of Environment, Food and Rural Affairs (DEFRA) will also support farmers and livestock owners about what to do with their animals, feed and milk products.

No outside crops such as vegetables or fruit should be offered for consumption or for sale until such time as approved by the Food Standards Agency.

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## What about food and drink?

Covered food and drink (e.g. fridge, freezer, larder, in containers) will be unaffected. Mains water supplies are also unlikely to be affected. Outside crops such as vegetables and fruit, may be contaminated, and therefore should not be eaten.

If you're breast-feeding you should switch to using breast milk substitutes as soon as possible, as any radioactive material you ingest or inhale could be passed to your infant through your milk.

However, if you don't have access to formula, do not stop feeding your baby, as this will be far more harmful to them. Your immediate priority should be to go inside and remain indoors until instructed otherwise

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## Background Information - The Science Bit!

### Radioactivity and Ionising Radiation

Atoms make up everything around us. Most atoms are 'stable' and remain the same forever, but some atoms (both naturally occurring and man-made) are 'unstable' and will change over time. Radioactivity is the term used to describe these unstable atoms changing into other atoms and emitting ionising radiation as they do so.

Ionising radiation is a specific type of radiation that is capable of disrupting stable atoms and cause them to become charged. This can cause chemical changes in living matter which may cause harm to people's health. There are other types of radiation, such as microwaves and visible light that cannot harm people in this way.

We are exposed to ionising radiation all the time, mostly from natural sources. It is all around us – in the landscape, building materials, in water, in our food and bombarding the earth from space and is commonly referred to as background

radiation. Our bodies also contain naturally occurring radioactivity. Radiation can be extremely useful, such as medical X-rays for diagnosis, enabling smoke alarms to work and sterilising frozen foods and medical products.



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## How can you be exposed to ionising radiation?

Radioactive materials and electrical radiation generators (such as X-ray machines) all emit ionising radiations. If you are close to these sources, the ionising radiation can be absorbed by your body, potentially causing chemical changes. However, you do not become radioactive and the hazard is removed once you move away from the source. You can think of ionising radiation a bit like heat from a fire: when close to the fire, it feels hot and you could potentially get burnt if you absorbed too much heat, but when you move away the heating sensation disappears.

However, radioactive material can sometimes be in a form in which can be easily spread around, such as a very fine powder (potentially too fine to be visible), a liquid or gas. If this radioactive material gets onto skin or clothing, or inside the body via inhalation, ingestion or open wounds, the person would be described as being contaminated. The ionising radiation emitted by

the radioactive material remains the hazard, but now the exposure to radiation continues even after moving away from the original source. If the radioactive material gets inside the body, it can remain for a very long period; this is called an internal exposure.

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## Hazards from an AWE radiation emergency:

In the unlikely event of a radiation emergency, you could be exposed to radiation hazards by:

- Inhaling radioactive particles in the air
- Eating food or drinking liquids that have been contaminated with radioactive particles
- Spending time in locations where significant amounts of radioactive particles have been deposited on the ground on other surfaces
- Not washing skin or changing clothes on which radioactive particles have been deposited

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## Three main radiation types

There are different types of ionising radiation; their different properties will influence how you

can be exposed to the radiation as described above. The three main types emitted by radioactive materials are summarised below:

Type	Symbol	Description
Alpha	$\alpha$	Alpha radiation is not very penetrative and cannot penetrate the outer layer of the human skin or a sheet of paper. However, it is harmful if it is emitted inside the body (internal exposure)
Beta	$\beta$	More penetrative than Alpha radiation, but can be stopped with a thin sheet of metal or a pane of glass. Can be harmful if emitted inside the body or within a short distance (1-3m) outside of the body.
Gamma	$\gamma$	Gamma radiation is very penetrative (like X-rays), easily passes through the human body and will travel hundreds of metres in air. It requires very dense materials like lead and concrete to stop it. It is most harmful when standing near a source (external exposure) and can be reduced by creating distance from the source.

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## How could radiation affect your body?

If radiation is absorbed by your body, either from external or internal exposure, it can cause changes to tissues in the body at molecular level, affecting your DNA, which is the blueprint for your cells, growth and development. These changes may lead to negative health effects such as cancer, which may not appear for many years after the exposure, but this is very rare.

The more you're exposed to radiation, the greater the chance of

experiencing some form of health effect as a result – but the risk remains small.

Individuals exposed to very high doses of radiation may receive burns to the skin, damage to the gastrointestinal, cardiovascular or nervous systems. Exceedingly high doses can cause death. However, the levels of radiation required to create these effects are much higher than a member of the public could conceivably receive even during a radiation emergency.

### Radiation measurement - quantities and units

- The long-term effect of ionising radiation on the body is measured in sieverts.
- The sievert (Sv) is the unit of radiation dose.
- The sievert is a large quantity, so the term millisievert or microsievert is often used.
- One millisievert (1mSv) = 1/1000 Sv
- One microsievert (1 $\mu$ Sv) = 1/1,000,000 Sv

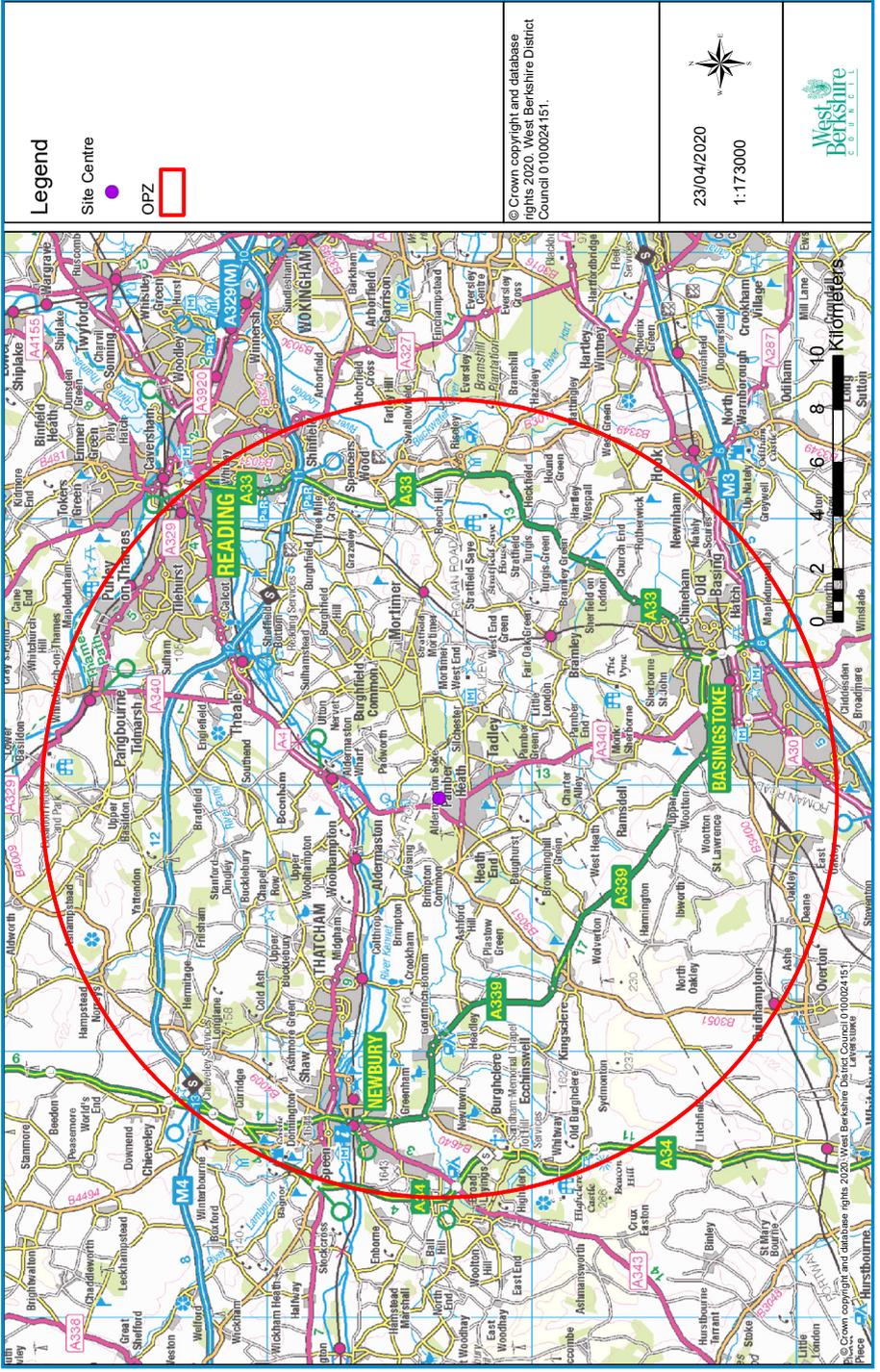
By following the guidance in this booklet, you can prevent or minimise your exposure to the hazards from a radiation emergency.

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mSv	Example
0.001	Dose from eating two Brazil nuts (from the naturally occurring radioactive content)
0.01	Average annual dose from a flight from the UK to Spain
0.02	Single chest x-ray
0.4	Average annual dose in the UK from all medical radiation
1	Average annual dose in the UK from naturally occurring radon in homes
2	Average total annual dose in the UK from natural radiation sources
8	Average annual dose from all sources of radiation in Cornwall
20	Annual legal worker dose limit
500	Threshold for nausea and reduction in white blood cells



# Outline Planning Zone Map for AWE Aldermaston 15km



# AWE Burghfield DEPZ

## Legend

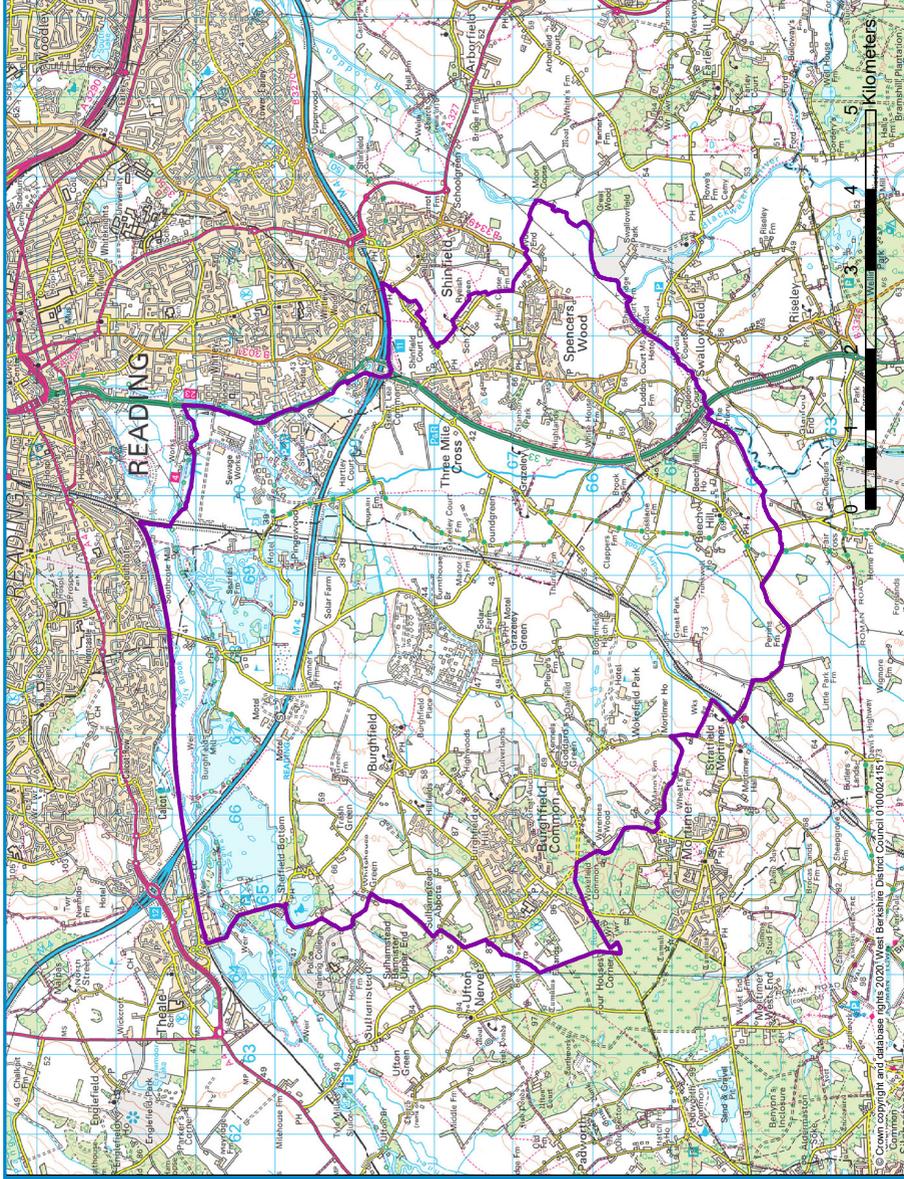
DEPZ 

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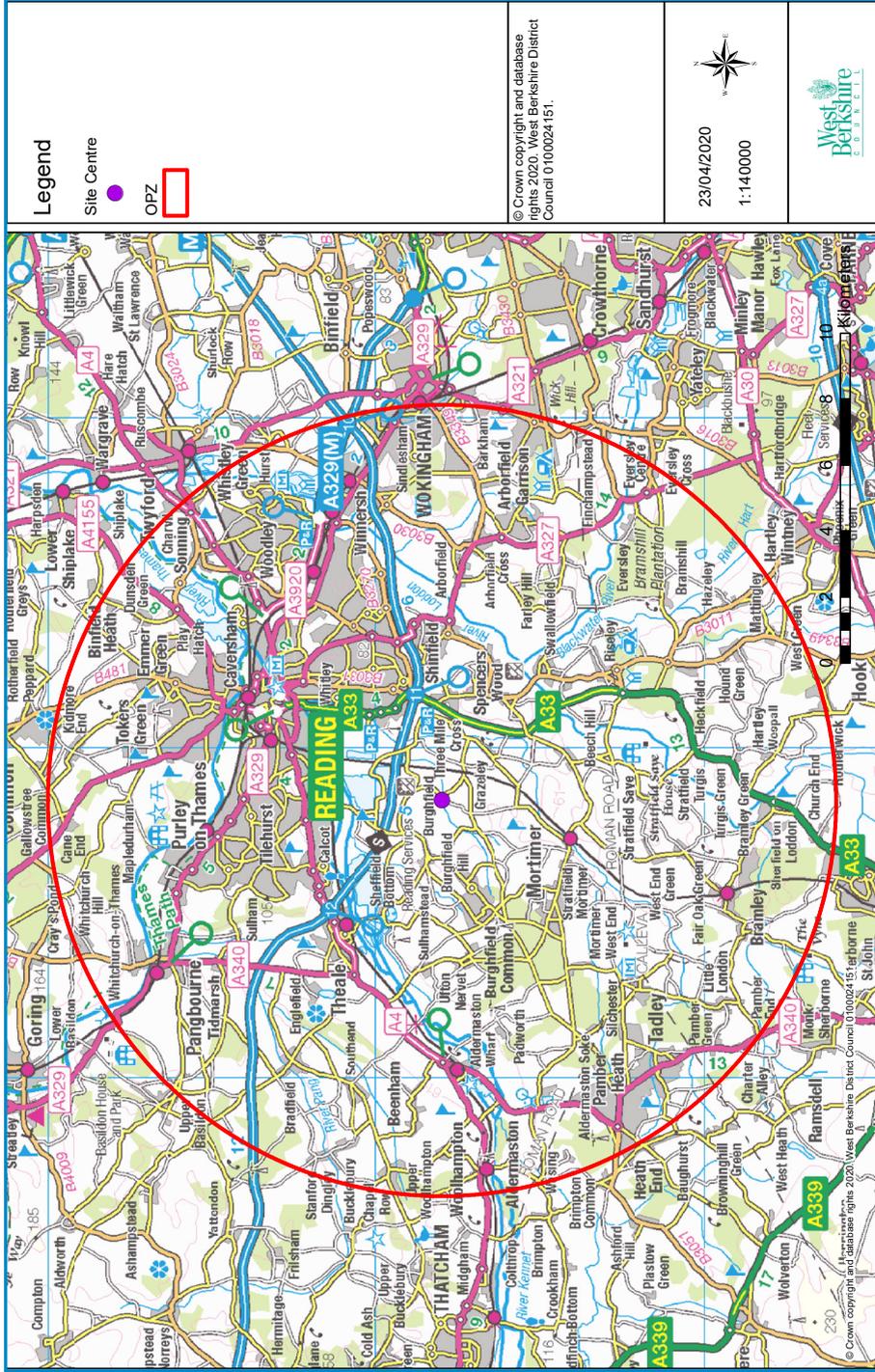
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# Outline Planning Zone Map for AWE Burghfield 12km





## What to do in the unlikely event of a radiation emergency at an AWE site

**IF you get a call or find out that there is a radiation emergency about AWE then follow the steps below:**

	<b>Go in</b>	Go indoors and follow the advice below
	<b>Stay in</b>	Close and stay away from all windows and doors. Damp down or put out fires and turn off any fans that could draw in air from outside. If you are not at home, go into the nearest permanent building and take off your outer layer of clothing, wash your hands, face, and other exposed body parts.
	<b>Tune in</b>	Tune in to local radio and TV. Advice and updates will also be given on news websites and social media
	<b>Don't use your phone</b>	Don't use your landline or mobile unless there is a separate emergency. This could overload the system and should be left clear for the emergency services
	<b>Don't leave the area</b>	Don't leave the area unless told to do so by the emergency services. You will be much safer indoors.

**TEAR THIS PAGE OFF AND KEEP IT ON YOUR FRIDGE, OR NOTICE BOARD**

# Radiation Emergency Preparedness and Public Information Regulations

This information has been prepared by West Berkshire District Council and AWE. It is valid from May 2023 for a maximum of 3 years until May 2026. It will be subject to review and revision following any of the criteria outlined in Regulation 21(6) of REPPiR 19.

This booklet is being distributed to all residents and businesses in the following postcode areas: RG2 0, RG2 6, RG2 9, RG7 1, RG7 2, RG7 3, RG7 4, RG26 3, RG26 4, RG26 5, RG30 3, RG31 7. This is because the DEPZs enter these post codes either partly or fully.

This information is also presented in the off-site emergency plan which can be found at

[www.westberks.gov.uk/awe](http://www.westberks.gov.uk/awe)

Further information can be found at

[www.awe.co.uk](http://www.awe.co.uk)

More information about the Basic Concepts of Radiation can be found online by scanning the QR code below:



The UK Health Security Agency has produced information on nuclear emergencies which can be found by scanning the QR code below:



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