

# What to do in a radiation emergency

**This guide provides advice and information on what to do in the extremely unlikely event of a radiation emergency on Rolls-Royce Submarines Limited's site in Raynesway, Derby.**

**This information has been produced by Derby City Council in conjunction with Rolls-Royce Submarines Limited.**

**It is important. Please keep it in a safe place where you can easily find it.**



# Introduction

**Rolls-Royce Submarines Limited** manufacture nuclear reactors and associated equipment for the Royal Navy's Submarine Fleet. The site has operated safely since operations began in the 1960's and is regulated by the Office for Nuclear Regulations (ONR) and the Environment Agency (EA).

Safety is the number one priority and the risk of accidental radiation exposure is extremely low due to the design of operational plants, extensive implementation of engineering controls, comprehensive procedural controls and training of employees. Nevertheless, the Radiation (Emergency Preparedness and Public Information) Regulations 2019 (REPPPIR) require site operators and local authorities to put in place comprehensive emergency plans to deal with any emergency and protect the public and the environment.

REPPPIR requires the local authority to provide prior information to the public covering what to do in a radiation emergency (this booklet).

The type of unlikely event which could lead to radiation emergency at the Rolls-Royce Submarines Limited site is known as a criticality accident. A criticality accident emits a high level of gamma and neutron radiation but no significant amounts of radioactive material (ie contamination). The threat from direct radiation falls away rapidly with distance and may be further reduced by the shielding effects of building structures.

# Key actions to take in an emergency

If you receive notification you should:

- ▶ Remain calm and follow the instructions below.
- ▶ Stay indoors, close all doors and windows. If possible go into a room facing away from the site.
- ▶ Put out or switch off all heating systems, ventilation fans and air conditioning systems to avoid drawing in outside air.
- ▶ Remain indoors until you are told by a police officer or other official that the danger has passed.
- ▶ Tune in to your local radio station, TV channel or social media for announcements telling you what to do.

You can keep up to date with advice during an emergency at Rolls-Royce Submarines Limited by tuning into:

<b>BBC Radio Derby</b>	<b>104.5</b>
Capital FM	102.8

Follow the police on social media for regular updates:

**[twitter.com/DerbysPolice](https://twitter.com/DerbysPolice)**

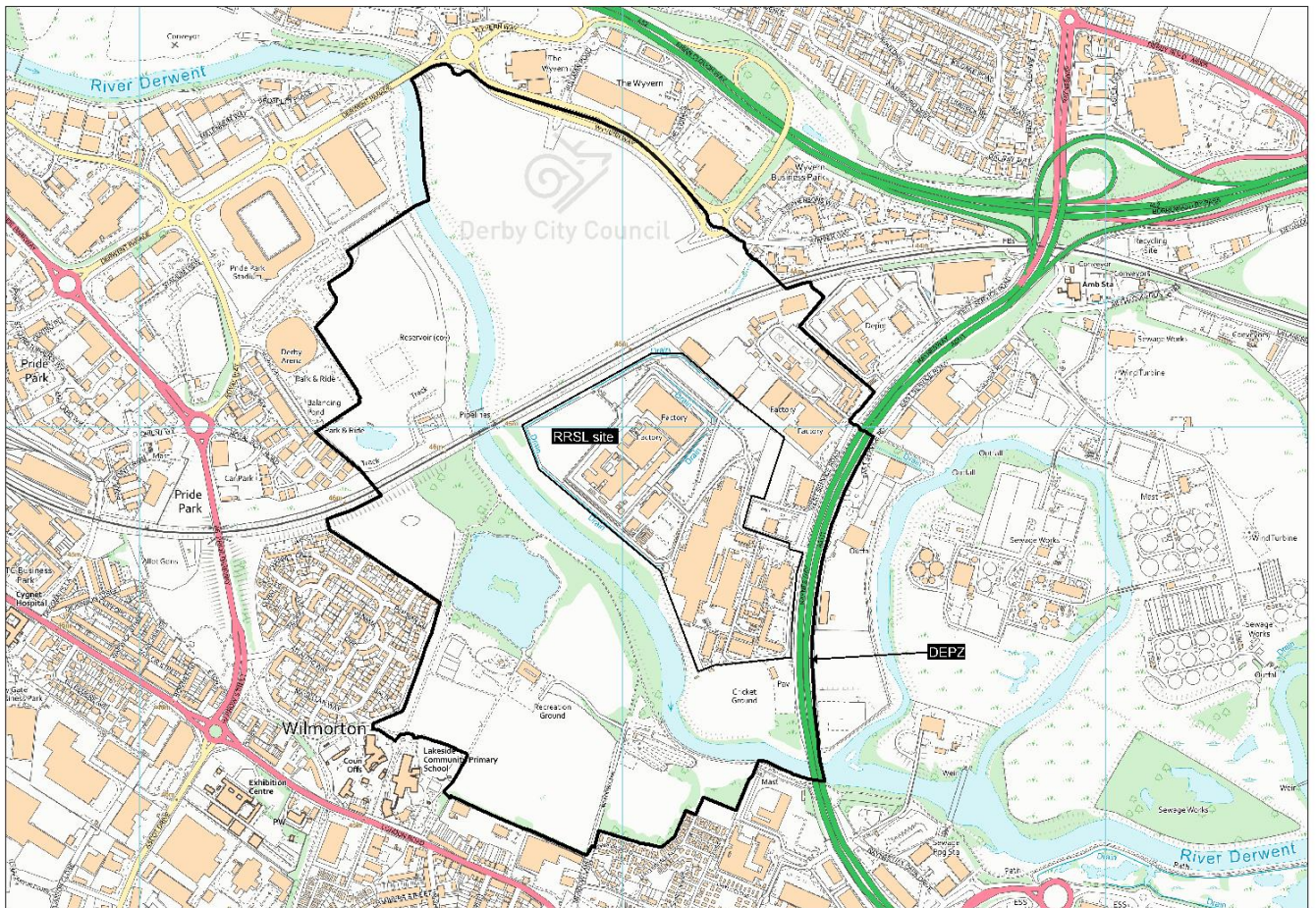
**[facebook.com/derbyshireconstabulary](https://facebook.com/derbyshireconstabulary)**

Visit the Derbyshire Live website:

**<https://www.derbytelegraph.co.uk/>**

# Detailed emergency planning zone (DEPZ)

This booklet is being supplied to members of the public who work within the Detailed Emergency Planning Zone (DEPZ) as shown in the map below. This is the area within which members of the public may be requested to take action in the unlikely event of a radiation emergency.



# Outline planning zone (OPZ)

In the extremely unlikely event of a radiation emergency having a wider-scale impact than is considered reasonably foreseeable, a further area has been identified. This area, known as the Outline Planning Zone (OPZ), covers a minimum of one kilometre from the centre of the site, beyond the DEPZ. There are no pre-planned actions to take in the OPZ. If required, the Emergency Services will notify members of the public within the OPZ of any actions to take.

A map showing the OPZ is available from the Derbyshire Prepared website [www.derbyshireprepared.org.uk](http://www.derbyshireprepared.org.uk)

# Guidance for local businesses

## Shelter

- ▶ Sheltering is the automatic protective action in the initial stages of a response and can dramatically reduce the levels of radiation and/or contamination you could be exposed to. Immediately make your way indoors if told to do so.

## Evacuation

- ▶ You may be advised to evacuate by the police but you must remain in shelter until told to do so. If an evacuation is required, follow the instructions given to you including on where you are being evacuated to. Evacuation is most likely to affect those people working immediately adjacent to the site.

## Road closures

- ▶ In the event of an emergency, it's likely that a number of roads may need to be closed to assist evacuations and the work of the emergency services. Please don't ignore road closed signs, they are there for a reason and for your safety.

## Food, water and medicines

- ▶ It is safe to use food stored indoors, for example in homes or shops, medicines stored in their normal packaging and mains tap water unless told otherwise.



## If you are told to shelter indoors...

- ▶ keep all the doors and windows closed
- ▶ move away from windows
- ▶ turn off air conditioning
- ▶ find a safer place inside such as a corridor or windowless room or a room facing away from the site
- ▶ tune into your local radio stations – they will be helping the police to issue advice
- ▶ make sure a telephone is close by.

## If you are told to evacuate...

- ▶ leave the building you are in as soon as possible
- ▶ use your building evacuation plan if you have one
- ▶ wear appropriate clothing
- ▶ tell other people and help those who need it
- ▶ use security and other staff to lead people to a safer place
- ▶ follow the instructions and advice of the police and those helping them.

# How you will know what to do

**Affected businesses will be contacted by the local authority, by telephone, telling them to follow these actions.**

Further information will be provided by:

- ▶ this document
- ▶ police officers on the street
- ▶ people helping the police such as other emergency services or security staff
- ▶ local radio stations
- ▶ public address systems
- ▶ Shop and Pubwatch radio schemes.

**Or** you can receive information directly from the police by following them on Twitter or Facebook or visiting their website.



# What is radiation?

Radiation refers to the transfer of energy from one place to another. Radiation is capable of causing harm to people's health, depending on the type and amount of radiation dose received. The information contained here is relating to ionising radiation, which would be the type released in the unlikely event of a radiation emergency at Rolls-Royce Submarines Limited.

These are the main types of ionising radiation:

## Alpha

Alpha particles are relatively big, heavy and slow, alpha particles are not able to penetrate very far through materials and even by the dead layer of skin on the outside of our bodies. Alpha particles do not pose a significant hazard from outside the body but can be harmful if inside the body (eg inhaled).

## Beta

Beta particles are relatively light and can penetrate through exposed skin. They can present a hazard from inside or outside the body.

## Gamma

Gamma rays are not particles but are like x-rays. These rays have no weight and can penetrate through the body, depositing some of their energy on the way. Exposure to gamma radiation can be significantly reduced by moving away from the source of radiation. Exposure can also be reduced by the use of thick, heavy shielding.

## Neutron

Neutrons are a type of particle which behave similarly to gamma rays and may penetrate through the body, depositing some of their energy on the way.

# What is radiation exposure?

The term radiation dose is used to describe the amount of energy absorbed from ionising radiation. The most common measure of radiation dose to people is measured in units called sieverts. A sievert is a large dose of radiation and in most cases the radiation dose will be given in microsieverts ( $\mu\text{Sv}$ , one-millionth of a sievert) or millisieverts (mSv, one-thousandth of a sievert).

At low levels radiation causes no immediate perceptible damage to people. However, any exposure to radiation is considered to be capable of increasing the lifetime risk of cancer.

## Radiation exposures

People have always been exposed to low levels of radiation from natural sources. On average, people in the UK receive an annual dose of 2.7 mSv.

Further guidance on radiation exposure is available from the UK Health Security Agency website

[Radiation Protection Services - Ionising Radiation and you \(ukhsa-protectionservices.org.uk\)](https://www.ukhsa-protectionservices.org.uk)

For further information about emergency plans and the planning arrangements for Roll-Royce Submarines Limited please contact Derby City Council:

Tel: 01629 538364

Email: [emergency.planning@derbyshire.gov.uk](mailto:emergency.planning@derbyshire.gov.uk)

Website:

[www.derbyshireprepared.org.uk/risks-derbyshire/major-industrial-accidents](http://www.derbyshireprepared.org.uk/risks-derbyshire/major-industrial-accidents)

We can give you this information in any other way, style or language that will help you access it. Please contact us on: 01332 640000  
Minicom: 01332 640666

### Polish

Aby ułatwić Państwu dostęp do tych informacji, możemy je Państwu przekazać w innym formacie, stylu lub języku.

Prosimy o kontakt: 01332 640000 Tel. tekstowy: 01332 640666

### Punjabi

ਇਹ ਜਾਣਕਾਰੀ ਅਸੀਂ ਤੁਹਾਨੂੰ ਕਿਸੇ ਵੀ ਹੋਰ ਤਰੀਕੇ ਨਾਲ, ਕਿਸੇ ਵੀ ਹੋਰ ਰੂਪ ਜਾਂ ਬੋਲੀ ਵਿੱਚ ਦੇ ਸਕਦੇ ਹਾਂ, ਜਿਹੜੀ ਇਸ ਤੱਕ ਪਹੁੰਚ ਕਰਨ ਵਿੱਚ ਤੁਹਾਡੀ ਸਹਾਇਤਾ ਕਰ ਸਕਦੀ ਹੋਵੇ। ਕਿਰਪਾ ਕਰਕੇ ਸਾਡੇ ਨਾਲ ਟੈਲੀਫੋਨ 01332 640000 ਮਿਨੀਕਮ 01332 640666 ਤੇ ਸੰਪਰਕ ਕਰੋ।

### Slovakian

Túto informáciu vám môžeme poskytnúť iným spôsobom, štýlom alebo v inom jazyku, ktorý vám pomôže k jej sprístupneniu. Skontaktujte nás prosím na tel.č: 01332 640000 Minicom 01332 640666

### Urdu

یہ معلومات ہم آپ کو کسی دیگر ایسے طریقے، انداز اور زبان میں مہیا کر سکتے ہیں جو اس تک رسائی میں آپ کی مدد کرے۔ براہ کرم  
منی کام 01332 640666 پر ہم سے رابطہ کریں۔ 01332 640000



Derby City Council