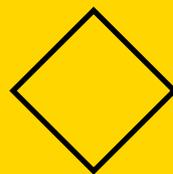
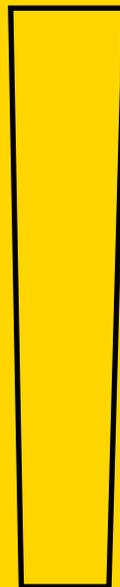


# In case of an alarm from Ringhals nuclear power plant

– What you need to know



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# To those living near Ringhals nuclear power plant

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If you live near a nuclear power plant, you must be well prepared in the event of a nuclear emergency. A nuclear emergency can lead to the release of radioactive materials that can harm humans and the environment.

The County Administrative Board is responsible for protecting the public in the event of a nuclear emergency. You are responsible for staying informed. You are receiving this brochure because you live or are staying in a precautionary action zone. Preparations are in place in the a precautionary action zones to protect the public.

Your own knowledge about what to do in the event of an emergency is part of the preparedness. Please read this brochure carefully. This will prepare you for how you will be alerted, how you will receive information in case of an accident, and what you are expected to do.

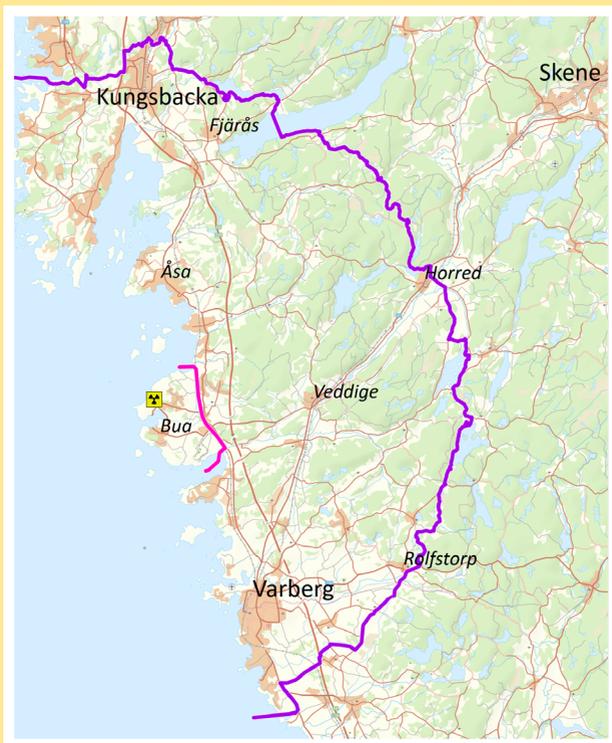


Keep the brochure at hand and note where you can find more information.

The brochure itself and its contents can be ordered or read at **[www.lansstyrelsen.se/halland](http://www.lansstyrelsen.se/halland)**.

# Precautionary action zones around Ringhals nuclear power plant

The precautionary action zones around the nuclear power plant are delineated by roads and other natural boundaries. The exact distance to the nuclear power plant is therefore slightly shorter or longer in places.



- Precautionary Action Zone (PAZ) approx. 5 km
- Urgent Protective Action Planning Zone (UPZ) approx. 25 km

# How you will be alerted

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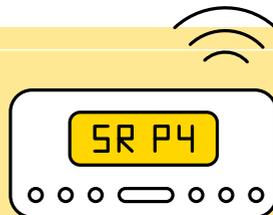
In case of a nuclear emergency, you will be alerted through the IPA (Important Public Announcement) warning and information system. Important public announcements are broadcast mainly on Radio Sweden's P4 and Swedish public service television channels. IPAs can also be sent as text messages to mobile phones in a specific area.

## Indoor warning

Everyone living in the precautionary action zones around the nuclear power plant must have their own warning receiver, which also functions as a radio. The warning receiver turns on automatically in the event of an alarm from the nuclear power plant. With the warning receiver, you listen to Radio Sweden's public emergency radio channel P4 Halland. By listening to Radio Sweden/P4 Halland, you will receive information about what has happened at the nuclear power plant and what you should do to protect yourself and others.

Households and organisations inside the precautionary action zones are provided with a warning receiver by the Swedish Civil Contingencies Agency (MSB). Place the warning receiver indoors in a central location.

All households and organisations in the precautionary action zones must have their own warning receiver that starts automatically if there is an alarm.



## Outdoor warning

In the precautionary action zones, it is possible to warn those who are outdoors. The outdoor warning signal "Hesa Fredrik" means that you should go inside, close doors, windows, and ventilation and listen to Radio Sweden P4 Halland. Remain indoors until you receive further instructions via Radio Sweden P4 Halland.

## Warning system tests

The indoor and outdoor warning systems are tested on the first non-public holiday Monday in March, June, September, and December,. You do not need to do anything other than note that the test was successful. The audible transmitter of the outdoor warning sounds at 15:00. In the evening at 19:00, the warning receiver turns on automatically and Radio Sweden reads out a test message heard through the warning receiver.

### Important public announcement (IPA)



Signal 7 seconds – pause 14 seconds

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### Danger over



Uninterrupted signal for 30 seconds

# How radioactive material and radiation affect you

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Radioactive material is present in low concentrations in our surroundings and the radiation emitted from such material can affect you. Every day, you are exposed to natural radiation from space and from radioactive material found in soil, water, and our own bodies. You may also be exposed to radiation during medical examinations and treatments.

## What are the harmful effects of radiation?

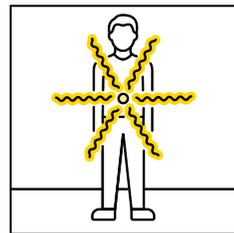
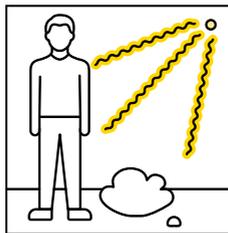
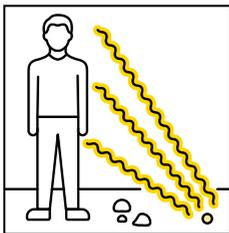
Radiation can affect the body's cells, damaging or killing them. The cells can be repaired, but if the radiation dose is very high, the body does not have time to repair the cells. This can damage enough cells for organ failure to occur. This is called acute effect. A high radiation dose over a short period of time is required for acute effect to occur.

Cells can also be repaired incorrectly, which can lead to late effects, such as cancer. The likelihood of this happening is low because the body normally has a good ability to destroy damaged cells.

## Radiation in the event of a nuclear emergency

Nuclear power plants are built with systems to protect against both technical failures and human error. If an accident results in the release of radioactive material, people may be exposed to radiation. Possible radiation doses in the event of an accident depend on the magnitude and course of the release, together with the current weather and what protective measures can be implemented in time.

You may be exposed to radiation from radioactive material in the air or soil. You may also be exposed to radiation by ingesting or inhaling radioactive material. This can happen when breathing or eating, or by inadvertent ingesting radioactive material on your body and clothes.



Read more at the Swedish  
Radiation Safety Authority's  
website: [ssm.se](http://ssm.se).

## Examples of radiation doses

The radiation doses in the table are expressed in millisieverts (mSv).

### Examples of radiation doses

Average annual dose for persons in Sweden	2.4 mSv
Annual dose limit for persons working with radiation	20 mSv
Radiation dose in an accident always warranting protective measures	100 mSv
Radiation dose that can lead to acute effects	1,000 mSv
Lethal radiation dose	10,000 mSv

# How to protect yourself

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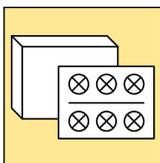
There are different ways to protect yourself from radioactive material in the event of a nuclear emergency. The most appropriate way(s) depends on the situation at the nuclear power plant, the weather, and the prevailing circumstances.

The County Administrative Board decides on and informs about the measures that provide the best protection based on the situation. Therefore, follow the instructions of the County Administrative Board, primarily via Radio Sweden P4.

## In the event of a nuclear emergency, you may need to:



**Shelter.** By staying indoors, you reduce your risk of breathing airborne radioactive material. Buildings also provide protection against radiation from radioactive material in the air or on the ground.



**Take iodine tablets.** By taking iodine tablets, your thyroid gland is saturated with non-radioactive iodine. This prevents the thyroid gland from absorbing radioactive iodine.



**Evacuate** By evacuating, you can avoid or reduce the risk of exposure to radiation following a release.



**Wash yourself and change your clothes.** By showering, changing your clothes and washing your hands regularly, you can reduce the risk of inadvertently ingesting radioactive material on your body or clothes following a radioactive release.



**Avoid certain foods.** Refraining from eating or drinking certain foods that may be affected by a radioactive release reduces your risk of ingesting radioactive material.

## Shelter

Residential buildings offer protection against radioactive material following release from a nuclear emergency. The best protection is where the walls and ceiling are thickest. Ensure that doors, windows, ventilation hatches, and ventilation are closed. This reduces the risk of airborne radioactive material entering your home.

The recommendation to shelter also applies to animals and pets. If possible, close doors and windows to livestock buildings and feed barns. Cover animal feed and water to prevent contamination by radioactive material.

If you must go outdoors, you should wear mouth and nose protection as well as clothing that covers your skin. It helps to wear clothes that are easy to clean, such as rainwear that can be easily rinsed off. Avoid bringing outdoor clothing inside to reduce the risk of spreading radioactive material. Wash yourself when you come inside.

Continue listening to Radio Sweden P4 Halland for current information. The County Administrative Board will make an announcement when the danger is over or if you should take further action to protect yourself.

## Only take iodine tablets when instructed by the County Administrative Board

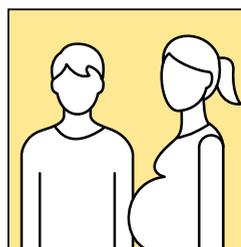
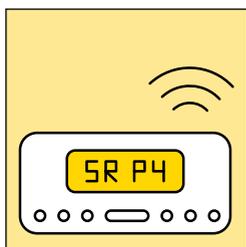
A nuclear emergency can lead to the release of radioactive iodine. Taking iodine tablets saturates the thyroid gland with non-radioactive iodine and prevents the thyroid gland from absorbing radioactive iodine. For children and pregnant women, iodine tablets

are particularly important because the thyroid gland of children and foetuses is more sensitive than in adults. Research shows that those over the age of 40 are not at risk of developing thyroid cancer from radioactive iodine. For people over 40, iodine tablets are therefore of no use. Animals should not take iodine tablets.

It is important to take iodine tablets at the right time and only when instructed by the County Administrative Board. If you take iodine tablets too early or too late, their effect is reduced. Iodine tablets can be used together with other protective measures, such as sheltering or evacuation.

Your age determines the dosage. Read the packaging and the included package leaflet/information sheet for the correct dosage.

Iodine tablets are medicines with expiration dates. The County Administrative Board sends out new ones when the iodine tablets must be replaced. If you lose your iodine tablets or need more, contact the County Administrative Board.



Only take iodine tablets when the County Administrative Board instructs you to do so. It is especially important for children and pregnant women to take iodine tablets. Age determines dosage. Therefore, read the packaging and the included package leaflet (information sheet) carefully.

## Evacuate

If the County Administrative Board assesses that remaining indoors is not sufficient protection, you may need to evacuate. People living or working in the inner emergency planning zone may need to evacuate as a precaution. Even if you live or work in the outer emergency planning zone, you must be prepared to evacuate.

Being forced to leave your home is a difficult situation and we may need to help one another. Society's resources must be focused primarily on those unable to take care of themselves.

Evacuation planning therefore includes various stages of preparedness to evacuate an area:

- **Pick-up point:** If the County Administrative Board urges you to leave an area and you do not have your own means of transport, you should go to a pick-up point. From there, you'll receive help with further transport. Pick-up points may be existing bus stops or places such as schools or residential care homes where buses can pick up passengers. The County Administrative Board will announce the pick-up points via Radio Sweden P4. Assist those unable to make it to a pick-up point on their own.

- **Evacuation Point:** If you have nowhere to go in case of evacuation (e.g., summer cottage, relatives or friends elsewhere), you can go to an evacuation point. There you will receive support based on your needs. The reception points offer showers and clean clothes as well as basic food and drink.
- **Reception Point:** Reception points are opened for those unable to arrange their own accommodation. Here you can get help with arranging short-term accommodation.

The situation determines which locations are designated and which evacuation points will be opened. Listen to Radio Sweden P4 Halland for up-to-date information

Some nuclear power plant workers are sent home in the event of an accident. Essential personnel needed to deal with the accident at the nuclear power plant will remain.

If you are requested to evacuate, it is important that you only take the essentials with you. Evacuated areas are guarded by the police.



Read more about protective measures at [www.lansstyrelsen.se/halland](http://www.lansstyrelsen.se/halland).

# Evacuation points Uppsala County



-  PAZ approx. 5 km
-  UPZ approx. 25 km

## **Keep this in mind if you must evacuate**

Remember to take only the essentials if you must evacuate.

Important items to consider or bring when evacuating include:

- iodine tablets and medicines
- hygiene products
- drivers' licences, ID cards, passports, and other ID documents
- warm clothes and a change of clothes
- money/cash, bank cards, security tokens/bank card readers
- mobile phone and charger
- Pets.

Please help those unable to evacuate themselves. Let your family know where you are going. Avoid making phone calls to reduce mobile-network overload. Send text messages instead.

## **Avoid certain foods**

The authorities may recommend that you do not eat or drink certain foods. This is to prevent you from ingesting radioactive material when eating or drinking. Tap water and milk are examples of foods that may be affected shortly after a nuclear emergency. The authorities may also recommend that you refrain from eating home-grown foods.

# How we prepare

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The aim of the authorities' emergency preparedness and response planning for nuclear emergency is to avoid acute effects and reduce late effects as far as reasonably possible. The authorities are responsible for ensuring that plans are in place to protect the public. As a private individual, you also have a responsibility. Prepare yourself by acquiring what you need and considering your own emergency preparedness. Ask yourself:

- Do I know what to do if I hear a warning signal?
- Do my family and I have what we need shelter for a few days?
- Is there somewhere I can go if I must evacuate?
- Where do I keep my iodine tablets?
- What do I do if I need more information?

## Responsibilities of the authorities

The County Administrative Board is responsible for rescue operations and for protecting the public from radiation in the event of a nuclear emergency. The County Administrative Board in turn receives advice and support from central authorities such as the Swedish Civil Contingencies Agency, the Swedish Radiation Safety Authority, the Swedish Board of Agriculture, and the Swedish National Food Agency. Municipal rescue services, the Swedish Police Authority, the Swedish Coast Guard, the Swedish Transport Administration, and Region Halland County are also involved in emergency response.

## Nuclear power plant emergency preparedness

In the event of an accident, radioactive materials may be released to the air or water. Nuclear power plants in Sweden have technology and planning to prevent or limit the release of radioactive material.

## Your home preparedness

When you are prepared, it is easier to cope in an emergency. This applies to all types of emergencies: power or water outages, loss of heat, or a nuclear emergency.

Preparedness looks different depending on where and how you live, for example in the countryside or an urban area, in a house or in an apartment. That is why your home preparedness must be adapted to your circumstances. Join forces with neighbours on certain things and share.

## Prepare shelter

In the event of a nuclear emergency, you may need to remain indoors for a day or two to protect yourself. When planning home preparedness, food, water, heating and the ability to access news and information are important.

-  **Clean drinking water.** Store containers of water in case tap water cannot be used. Allow for at least three litres per adult per day. Store the water in a dark and cool place.
-  **Food.** Store food with a long shelf life at home. Choose foods that can be prepared quickly and require little or no water. Some examples include canned goods, pasta, lentils, beans, root vegetables, nuts, coffee, soft cheese, crispbread, rusks, or other bread with a long shelf life.
-  **Heating.** If the electricity goes out, your home can quickly become freezing. That's why it's a good idea to have warm clothes, gas heaters, camping stoves with fuel, candles, sleeping bags, blankets, and matches. Beware fire hazards!
-  **Stay informed.** A battery or solar powered radio is good to have. In the event of a serious incident, you need to be able to receive information from the authorities via P4 Halland radio broadcasts. Your mobile phone can be kept charged with an extra battery or car charger. You should have important telephone numbers written down on paper.

Read more in the brochure "If Crisis or War Comes" which has been sent to you in the post. You can find more information about home preparedness at [msb.se](https://www.msb.se).



# For more information

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Get information from the right source. The authorities use Radio Sweden P4 to broadcast information. Do not believe rumours. Above all, be source critical of information spread through social media. Use several credible sources to check the accuracy of any information.

**County Administrative Board:** If you have questions about iodine tablets or want to know more about nuclear preparedness. **E-mail:** [halland@lansstyrelsen.se](mailto:halland@lansstyrelsen.se), **Telefon:** 010-224 30 00

**Swedish Radiation Safety Authority:** Works to protect people and the environment from the harmful effects of radiation. Read more at [ssm.se/en](http://ssm.se/en)

**Swedish Civil Contingencies Agency (MSB):** Supervises and supports the authorities responsible for nuclear emergency preparedness. Read more about outdoor warning systems at [msb.se/vma](http://msb.se/vma).

## Emergency information

- **Radio Sweden P4 Halland** is the public emergency radio channel that broadcasts in the event of serious emergencies and crises.
- The website [krisinformation.se](http://krisinformation.se) provides current and comprehensive information from the Swedish authorities during crises.
- Call the national **emergency number 113 13** to receive or provide information in the event of a nuclear emergency or other serious emergency.
- For health and medical advice, visit the website [1177.se](http://1177.se).



# Checklist

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## Residents in an precautionary action zone around the nuclear power plant:

- You know the warning signals and what to do.
- You have installed the warning receiver and know that it is tested four times per year.
- You know where You keep pre-distributed iodine tablets.

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## In the event of an accident:

- You know where I can go following an evacuation order.
- You know that I should always listen to Radio Sweden P4 for more information in the event of an accident.
- If requested to stay inside, You will also shelter outdoor animals.
- You close doors and windows, including those in livestock buildings and feed barns.
- You keep up to date with accurate information via trusted channels, primarily Radio Sweden P4.

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## In case of evacuation You will bring:

- iodine tablets and medicines
- hygiene products
- driver's licence, ID card or passport
- warm clothes and a change of clothes
- money, bank card, security token/ bank card reader
- mobile phone and charger
- pets.

## Remember:

- Let family members know where you are going.
- Text rather than call to reduce mobile-network overload.
- Help those unable to evacuate themselves.
- Leave animals that cannot travel (farm animals and horses) indoors with feed and water for a few days.
- Inform the police about animals left behind.
- Preschool/school children and care home residents are helped to evacuate.

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## Prepare to shelter by:

- Storing clean water in cans or PET bottles in the freezer.
- Stockpiling food with a long shelf life.
- Ensuring heating and cooking during a power outage by having candles, camping stoves, and sleeping bags.
- Having a battery powered or crank radio to stay informed.



Contact details on the following page.





# For more information in the event of an emergency

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Sveriges Radio P4 Halland,  
**[www.sverigesradio.se/halland](http://www.sverigesradio.se/halland)**

Halland County Administrative Board,  
**010-224 30 00**  
**[www.lansstyrelsen.se/halland](http://www.lansstyrelsen.se/halland)**

Emergency information from Swedish  
authorities krisinformation,  
**[www.krisinformation.se](http://www.krisinformation.se)**

Sweden's national information hotline  
for major emergencies and crises, **ring 113 13**