

**NEVER BE IN THE DARK WITH YOUR SAFETY.**

———— Nuclear Safety Guide ————



# Everything you need to know about a nuclear emergency.

Safety is the number one priority at OPG. No member of the public has ever been harmed from our nuclear operations. However, it's important that our surrounding communities are prepared in the unlikely event of a nuclear emergency. So to start your emergency kit, the information in this flashlight will help keep you out of the dark.



REGIONAL MUNICIPALITY OF  
**Durham**  
*A Great Place to Grow*

## What you need to know if a serious accident happens.

Since it started operating more than 40 years ago, the Pickering Nuclear Generating Station has never had a serious accident, and the Darlington Nuclear Generating Station has operated for 25 years without an incident. OPG ensures that responses to any given number of emergency scenarios are tested on a regular basis.

It is important to be prepared for emergencies, even though it is expected that systems and operators will always safely shut down nuclear reactors long before a serious accident ever happens. In the unlikely event of a serious nuclear accident, a radioactive release may occur. This radioactive release would take the form of a vapour cloud — not an explosion.



In the unlikely event of a serious nuclear accident where a radioactive release would occur, it would take many hours and days to unfold. (Read about our multiple safety systems later on.) Protecting the public would be the first priority. Within 15 minutes of an accident, OPG will notify the provincial and municipal governments about the severity of the issue. Officials would then notify the public of any actions they need to take and implement emergency plans. Each government emergency management office has pre-established and well-rehearsed plans to protect the public.



An illustration of a park scene. In the foreground, a person is walking a dog on a path. To the left, there is a large grey structure resembling a megaphone or a lamp post. In the background, a nuclear power plant with several cooling towers is visible on a hill. The sky is blue with some clouds and a setting or rising sun on the right. A large, stylized grey shape is on the right side of the image.

## If the accident escalates:

- \* People in parks or open areas close to the facility will be alerted by OPG security.
- \* Sirens located in the 3 km radius of the station will go off.
- \* All landline phones in Durham within a 10 km radius of the station would be called with instructions on what to do.
- \* Instructions will also be broadcast on television, radio, online and through social media.

The siren is a warning and does not mean you need to evacuate. Residents should stay calm, go inside and tune in to local media for information. Call 911 only for life-threatening emergencies. And be sure to sign up for public alerting at [www.ontario.ca/emo](http://www.ontario.ca/emo).

The following stations will provide further information:

- \* KX96 – 95.9 FM
- \* CBC Radio 99.1 FM
- \* 680 AM
- \* CP24






## How do I stay prepared?

As part of your emergency survival kit – for any kind of emergency – store at least four litres of water per person per day (two for drinking, two for washing) for three days. Also, have a three-day supply of food for each person and any pets. Select foods that are compact, lightweight and non-perishable, and require no refrigeration, cooking or added water.

Keep the following supplies in a sturdy, easy-to-carry bag:

- ✿ A manual can opener
  - ✿ A first-aid kit
  - ✿ Any medications, infant formula
  - ✿ Extra keys for the house and car
  - ✿ Cash in small bills
  - ✿ Potassium iodide (KI) pills for you and your family
  - ✿ A battery-powered or hand-crank radio with an extra supply of batteries
- 



## What should I do if there's no power?


In the event of a total blackout, it is important to keep battery-powered or hand-crank radios in your house to receive important information.

An illustration in a dark blue and teal color palette. On the left, a large, stylized television set is shown from the side. In the center, the silhouettes of a man, a woman, and a child are shown from behind, sitting on a couch and watching the TV. On the right, a smaller television set sits on a dark wooden stand. The screen of this TV displays a yellow background with a man in a suit and tie, and the words "EMERGENCY BROADCAST" in bold, black, sans-serif capital letters at the bottom. The background of the entire scene is a gradient of dark blue and teal, with some geometric shapes suggesting a room.

## Should I evacuate?

Not unless instructed to do so. In the unlikely event of a nuclear accident, it is important to follow the instructions provided by the Province to ensure protective actions.

Residents will be asked to evacuate to a location of their choosing. Reception and evacuation centres will also be established to provide services and accommodation. These sites will be equipped with radiation monitoring and decontamination equipment as a precaution.

An illustration of a yellow house with a brown roof and a green garage door. The house is set in a landscape with rolling hills, a large tree with orange and yellow leaves on the left, and a smaller tree on the right. A bright sun is visible in the upper right corner. Several orange and yellow leaves are shown falling through the air, and a white curved line suggests a path or a breeze. The sky is a light blue gradient.

Depending on the prevailing winds and the weather conditions at the time, staying inside your house with the windows closed and ventilation to the outside turned off may be safer than evacuation. This is called sheltering. You will be instructed whether to evacuate or shelter in place.

Plus, certain residents and businesses may be instructed to evacuate to areas that will not be affected by a potential radiation release. Local police will ensure that evacuation proceeds in an orderly manner.

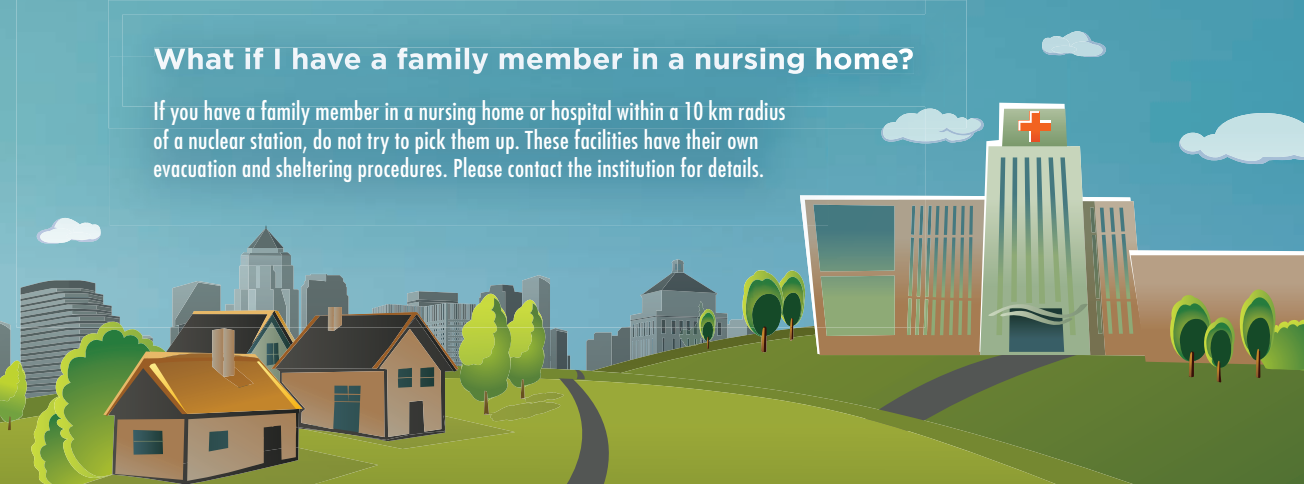
## What if my children are in school?

Every school within the 10 km zone of the nuclear station follows its own emergency and evacuation procedures which you should receive at the beginning of each school year. If schools are evacuated, local radio and television stations will announce when and where parents can pick up their children. School personnel will supervise the children until parents can pick them up.



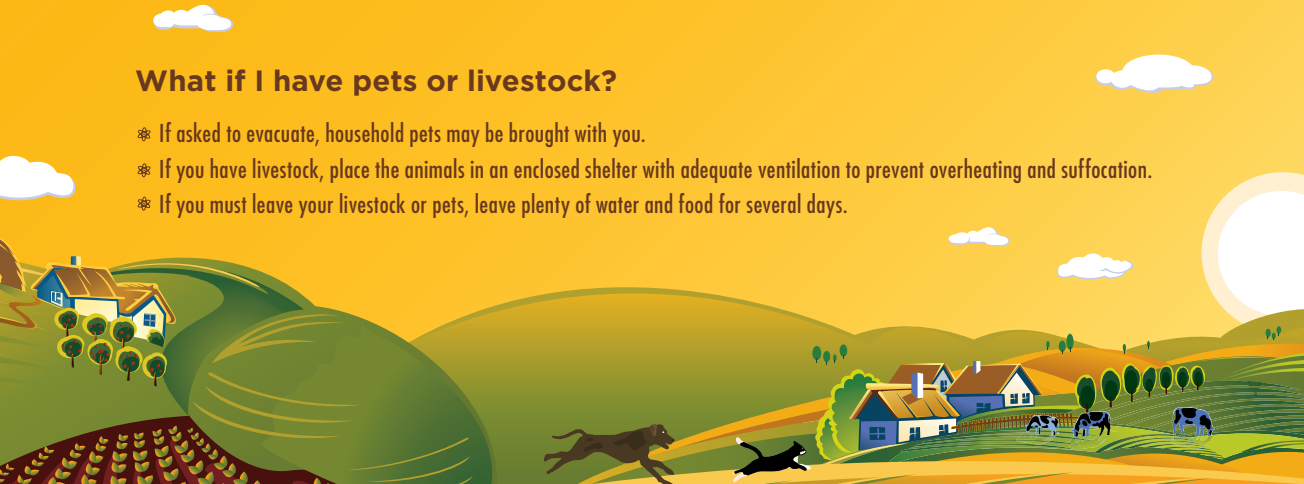
## What if I have a family member in a nursing home?

If you have a family member in a nursing home or hospital within a 10 km radius of a nuclear station, do not try to pick them up. These facilities have their own evacuation and sheltering procedures. Please contact the institution for details.



## What if I have pets or livestock?

- ✿ If asked to evacuate, household pets may be brought with you.
- ✿ If you have livestock, place the animals in an enclosed shelter with adequate ventilation to prevent overheating and suffocation.
- ✿ If you must leave your livestock or pets, leave plenty of water and food for several days.





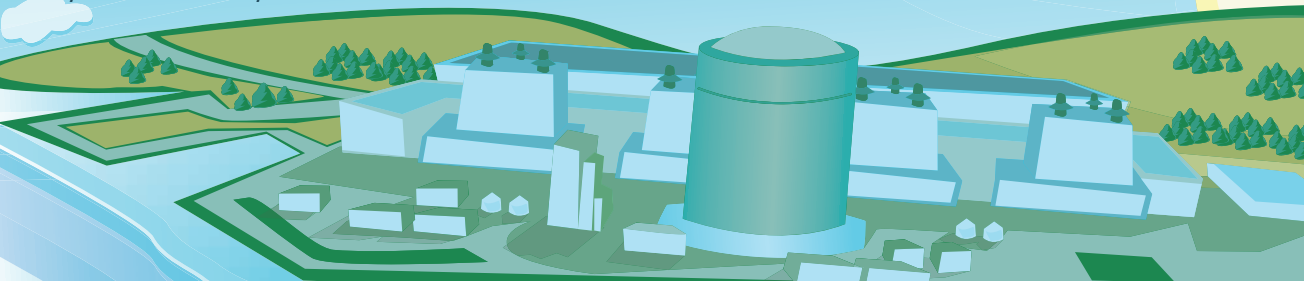
## The facts about potassium iodide pills.

If a severe nuclear accident occurs, radioactive iodine may be released and could accumulate in the thyroid gland. If there is a potential for such a release, you may be instructed to ingest potassium iodide, or KI pills to block radioactivity from entering the thyroid. If taken immediately before or during an accident, potassium iodide will help reduce the dose of radiation. KI pills are distributed to schools, daycares, and healthcare facilities, located within 10 km radius of the nuclear stations and are also available free-of-charge to individuals living within the 10 km zone.

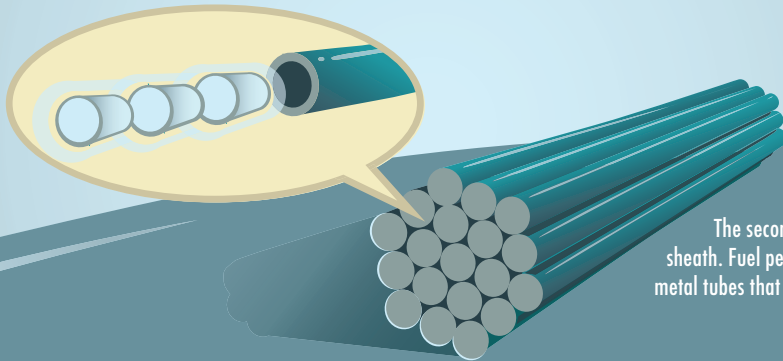
See the tear-away in the back for a list of pharmacies.

## What are the safety systems?

Pickering and Darlington Nuclear Generating Stations employ many lines of defence to reduce the chance of an accident. All of these systems are monitored by the Canadian Nuclear Safety Commission. In the unlikely event of an accident, further measures are in place to reduce any harm to the community.

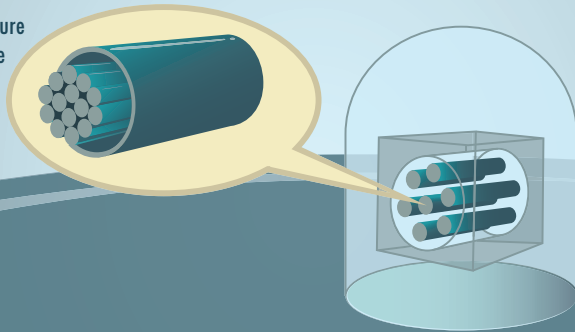


The first protective barrier is fuel. More than 99 per cent of the radioactive by-products are locked within the hard, moulded ceramic fuel pellets.



The second barrier is the surrounding fuel sheath. Fuel pellets are enclosed in these sealed metal tubes that are assembled into fuel bundles.

The third barrier is the fuel bundles found inside the cooling system pressure tubes. Water is pumped through these tubes to cool the hot fuel bundles.



The fourth barrier is enclosed within the airtight reactor building. The building has concrete walls at least four feet thick.

The reactor building is connected to a large vacuum building that will suck up any radioactive steam release to condense it into a liquid.

The station is equipped with flood guards and emergency backup power generators that could keep the fuel cool and safe.



For further information about OPG's facilities, nuclear safety, radiation or other nuclear issues, please visit [opg.com](http://opg.com), or call:

Pickering  
Nuclear

905-837-7272

Darlington  
Nuclear

905-623-7122

Canadian Nuclear  
Safety Commission

1-800-668-5284

[www.cnsc-ccsn.gc.ca/eng](http://www.cnsc-ccsn.gc.ca/eng)

Office of the Fire Marshal  
and Emergency  
Management

416-314-3723

Sign up for Red Alerts at  
[www.ontario.ca/emo](http://www.ontario.ca/emo)

Durham Region  
(Emergency Management)

905-430-2792

[www.durham.ca](http://www.durham.ca)

City of Toronto  
(Office of Emergency  
Management)

416-392-4554

[www.toronto.ca/oem](http://www.toronto.ca/oem)



## And remember, if an emergency occurs:

- \* **GO** inside and turn on your radio, television or hand-held device.
- \* **LISTEN** to media reports for emergency information.
- \* **FOLLOW** instructions provided by the Province.

OPG works with provincial and municipal governments to make your safety the number one priority. Now that you're better informed, remember to keep this flashlight on hand to prepare for an emergency.